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Vol 2181 A

No. 9113

United States
Circuit Court of Appeals

For the Ninth Circuit.

SIX COMPANIES OF CALIFORNIA, a corporation, and
HARTFORD ACCIDENT AND INDEMNITY COMPANY,
a corporation, FIDELITY AND DEPOSIT COMPANY
OF MARYLAND, a corporation, THE AETNA CAS-
UALTY AND SURETY COMPANY, a corporation, IN-
DEMNITY INSURANCE COMPANY OF NORTH
AMERICA, a corporation, AMERICAN SURETY COM-
PANY OF NEW YORK, a corporation, MARYLAND
CASUALTY COMPANY, a corporation, UNITED
STATES FIDELITY AND GUARANTY COMPANY, a
corporation, THE FIDELITY AND CASUALTY COM-
PANY OF NEW YORK, a corporation, GLENS FALLS
INDEMNITY COMPANY, a corporation, STANDARD
SURETY AND CASUALTY COMPANY OF NEW YORK,
a corporation, STANDARD ACCIDENT INSURANCE
COMPANY, a corporation, MASSACHUSETTS BOND-
ING AND INSURANCE COMPANY, a corporation, CON-
TINENTAL CASUALTY COMPANY, a corporation, and
NEW AMSTERDAM CASUALTY COMPANY, a corpo-
ration,

Appellants,

vs.

JOINT HIGHWAY DISTRICT NO. 13 OF THE STATE OF
CALIFORNIA, a public corporation,

Appellee.

Transcript of Record FILED


In Eight Volumes
VOLUME VIII
Book of Exhibits

APR 18 1933

PAUL P. O'BRIEN,

CLERK

Upon Appeal from the District Court of the United
States for the Northern District of California,
Southern Division.



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Public.Resource.Org and Law.Gov



SCHEMATIC PHOTOGRAPH SHOWING CROSS-SECTION
OF LINING. TYPE "I" METHOD.

U. S. DIST. CT. N. D. CAL.

No. 20101-R

FILED May 4, 1938

WALTER B. MALLING, CLERK

Pell's

EX. No.

86

BY

J. W. Schaefer

DEPUTY CLERK



U. S. DIST. CT. N. D. CAL.

No. 20101-R

Plff's

EX. No.

87

FILED

May 5, 1938

WALTER B. MALING, CLERK

BY

W. B. Malinger

DEPUTY CLERK



U. S. DIST. CT. N. D. CAL.

No. 20101-R

Plff's EX. No. 87

FILED May 5, 1938

WALTER B. MALING, CLERK

BY

W. B. Malinger

DEPUTY CLERK



Ex. No. 87



Ex. No. 87.

PLAINTIFF'S EXHIBIT NO. 92

INDUSTRIAL ACCIDENT COMMISSION

State Building

San Francisco

April 16, 1936

Six Companies of California,
1522 Latham Square Bldg.,
Oakland, California

Gentlemen:

You are hereby advised that the order of this Commission covering the Broadway Low Level Tunnels, dated February 29, 1936, is hereby rescinded, if the following conditions are complied with:

1. Driving may be continued in the upgrade tunnel beyond the junction of the wall plate drifts to the East portal and driving may be resumed in the downgrade tunnel beyond the caved-in portion to the East portal, if a method is followed as presented by your drawing No. 119, dated April 10, 1936, which consists in general of installing 8 x 10 timber spreaders in each timber set and extending across the tunnel approximately 19 and 27 feet respectively above the finished floor of the tunnel; further by continuing to use excavation equipment which may be operated beneath the lower spreader without interfering with it.

The top spreader is to be installed immediately after the completion of the segment set. The lower spreader is to be installed immediately after the core is excavated sufficiently to allow this spreader to be installed. Two longitudinal timbers, 2 x 12", are to be spiked to the top of each lower spreader to prevent bowing.

Two sets of hangers, two to each set, are to be provided for both the bottom and top spreaders all as per detailed drawing No. 119.

2. A wall plate system for driving the tunnel will be permitted provided 12 x 12 plumb posts are installed under each segment set, tightly wedged in place. Batter posts may be used provided in plumb posts are installed immediately after excavation is done for such posts. The batter shall not exceed 6 to 15 from the vertical.

Dowels shall be installed in each A segment and wall plate. (The dowel system will be accepted in lieu of placing the spreader at the wall plate joint.)

The plates shall be blocked behind each segment set and shall set on a firm and even bearing.

Provision must be made against undermining the wall plates by the Bagley system of excavation, and also against overshooting the side walls directly under the wall plates.

3. In addition to the Fire Bosses keeping the record of overbreaks as outlined under the Commission's order of March 16, 1936, the Fire Bosses shall check the segment sets daily to determine if the

wall plates have settled, thereby loosening the wedging and packing of the segments.

The contractor shall also make a daily check of the segment sets to determine if the wedging and packing is tight.

If the segments are found to have become loose rewedging shall be done.

4. The core of the tunnel section shall continue to be sloped sufficiently to provide safety against caving ground to the workmen drilling lifters or similar holes.

Very truly yours,

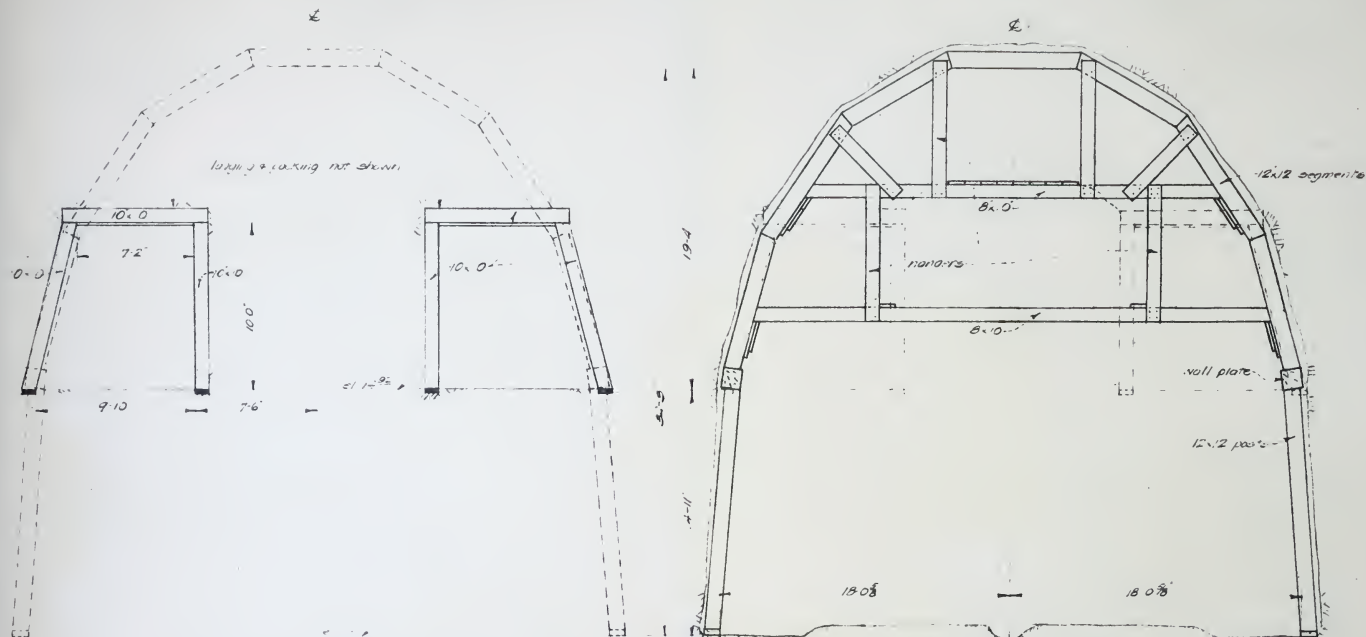
(Signed) T. A. REARDON

Commissioner

(Signed) FRANK J. BURKE

Deputy Commissioner.

[Endorsed]: U. S. Dist. Ct. N. D. Cal. No. 20101-R. Plff's Ex. No. 92. Filed May 5, 1938. Walter B. Maling, Clerk. By J. A. Schaertzer, Deputy Clerk. [160]

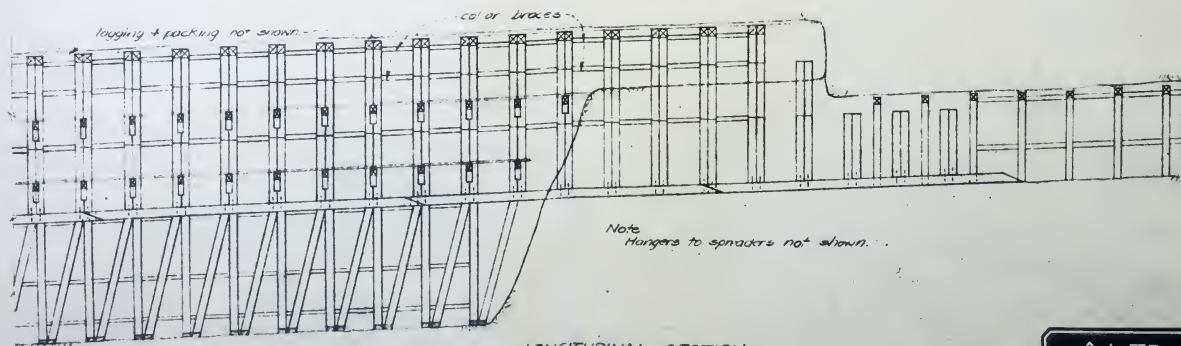


PRESENT WALL PLATE DRIFTS

Scale 1/2"=1'-0"

EXPANDED MAIN TIMBERING

Scale 1"=1'-0"



LONGITUDINAL SECTION

Scale 3/4"=1'-0"

AI-73
TYPE G

BROADWAY TUNNEL
SIX COS. OF CALIFORNIA

EXCAVATION METHOD
SOUTH TUNNEL

Scale shown April 10, 1936

App'd. NA 119



Puff's Ex. No. 93.



U. S. DIST. CT. N. D. CAL.

No. 20101-R

Plff's EX. No. 93

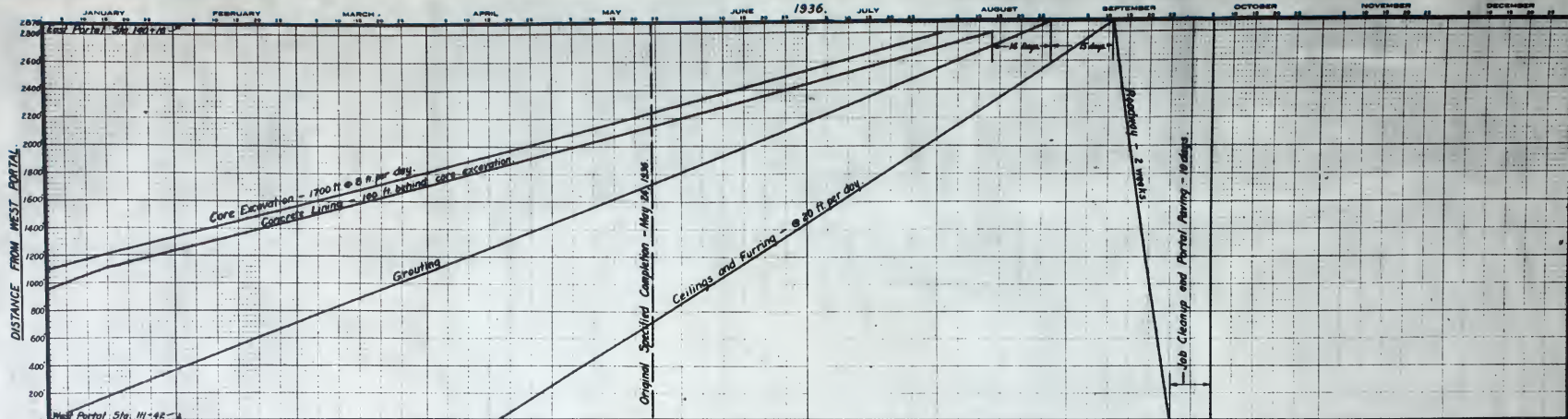
FILED May 5, 1938

WALTER B. MALING, Clerk

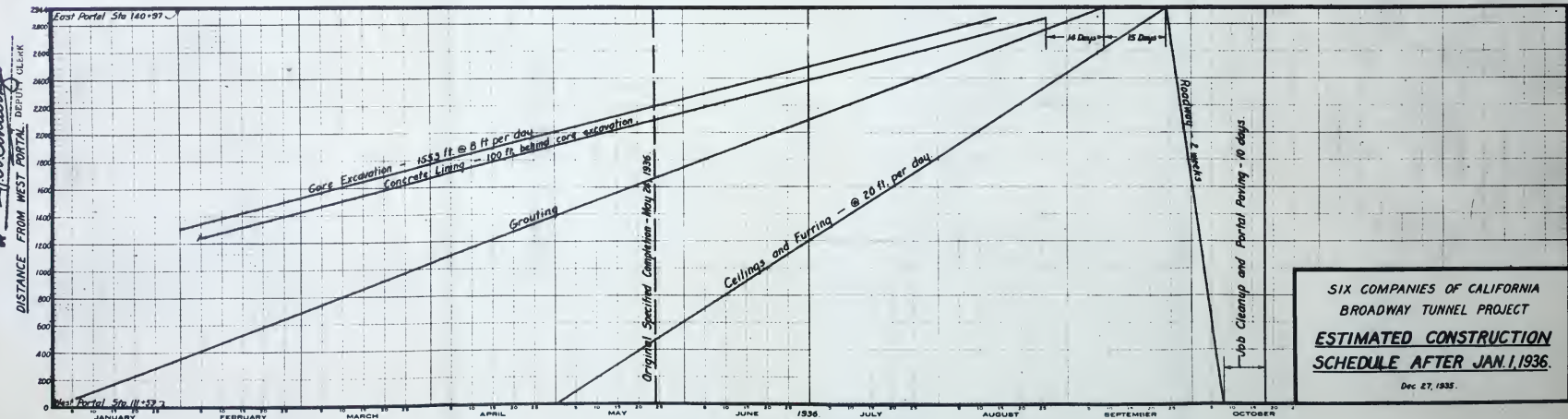
BY

L. A. Schaefer

DEPUTY CLERK



NORTH OR DOWNGRADE TUNNEL.



SOUTH OR UPGRADE TUNNEL.

SIX COMPANIES OF CALIFORNIA
BROADWAY TUNNEL PROJECT
**ESTIMATED CONSTRUCTION
SCHEDULE AFTER JAN. 1, 1936.**

Dec 27, 1935.

IV. (b)

(3) Construction Cost, Subdivided into Principal Structures or Classes of Work, and Showing (i) Labor and (ii) Material Cost for Each Subdivision:

ESTIMATE

Item	Quantity	Labor (i)	Materials (ii)	Other Items	Total
1. Grading.....	763,000 cu. yds.	\$ 53,424.00	\$ 22,423.50	\$153,052.50	\$ 228,900.00
2. Overhaul.....	8,100,000 sta. yds.	11,340.00	8,250.00	20,910.00	40,500.00
3. Structural Excavation.....	44,000 cu. yds.	60,500.00	198.00	5,302.00	66,000.00
4. Shoulders.....	362,000 sq. ft.	2,534.00	3,630.00	1,076.00	7,240.00
5. Reinforcing Steel.....	4,420,000 lbs.	55,252.50	114,920.00	28,727.50	198,900.00
6. Structural Steel.....	445,000 lbs.	4,005.00	12,549.00	5,696.00	22,250.00
7-8. Concrete.....	15,350 cu. yds.	38,377.50	97,040.90	91,631.60	227,050.00
9-10. Concrete pavement.....	68,100 sq. ft.	2,625.00	8,605.27	115.73	11,346.00
11. Asphalt Surface.....	44,000 sq. ft.	88.00	3,146.85	285.15	3,520.00
12. Oil Macadam.....	724,000 sq. ft.	3,864.00	72,561.35	10,454.65	86,880.00
13-14-15-16. Curb.....	3,716 lin. ft.)				
Gutter.....	4,300 sq. ft.)				
17. Cement Sidewalks.....	21,000 sq. ft.	277.50	1,234.80	1,887.70	3,400.00
18. Fill Protectors.....	15 each	525.00	1,597.05	1,237.95	3,360.00
19-29 incl. Pipe Culvert.....	9,340 lin. ft.	30.00	104.86	15.14	150.00
30-39 " Manholes, etc.....	48 each	1,309.00	15,522.75	6,220.00	23,051.75
		1,536.00	420.00	684.00	2,640.00

DEFENDANT'S EXHIBIT A (Continued)

Item	Quantity	Labor (i)	Materials (ii)	Other Items	Total
40. Underdrains.....	4,100 lin. ft.	56.00	3,075.00	1,994.00	5,125.00
41. Piping, 6 inch Cast Iron.....	2,020 lin. ft.	272.00	1,360.26	2,407.74	4,040.00
42. Guard Rail.....	12,400 lin. ft.	3,968.00	2,976.00	1,116.00	8,060.00
43. Pipe Hand Rail.....	640 lin. ft.	90.00	528.00	662.00	1,280.00
44. Rip Rap.....	220 cu. yds.	308.00	—	1,892.00	2,200.00
45. Metal Cribbing.....	46,000 lbs.	276.00	4,600.00	874.00	5,750.00
46. Gravel Foundation.....	330 cu. yds.	102.00	716.10	831.90	1,650.00
47-48. Tunnel.....	5,820 lin. ft.	1,319,290.00)		(2,010,800.00	
49. Cross Adits.....	322 lin. ft.	5,131.00)	444,327.35	250,101.65 (	8,050.00
50. Ventilation Buildings.....	Lump sum	120,772.50	105,799.60	34,427.90	261,000.00
51. Ventilation Equipment.....	Lump sum	12,000.00	80,000.00	16,350.00	108,350.00
52. Mechanical Equipment.....	Lump sum	12,000.00	20,000.00	2,000.00	34,000.00
53-54. Electrical Equipment and Carbon Monoxide Detectors & Recorders.....	Lump sum	41,000.00	140,000.00	21,620.00	202,620.00
Administration, Engineering & Inspection.....		173,922.69			173,922.69
		\$1,924,875.69	1,165,586.64	661,573.11	3,752,035.44

[Endorsed]: U. S. Dist. Ct. N. D. Cal. No. 20101-R. Deft's Ex. A. Filed April 13, 1938. Walter B. Mal-
ing, Clerk. By J. A. Schaertzer, Deputy Clerk.

NAME

USE

- 1 BROADWAY LOW LEVEL
- 2 SAN PABLO
- 3 GLAREMONT
- 4 LAFAYETTE
- 5 SHEPARD
- 6 UPPER SAN LEANDRO
- 7 OLD TUNNEL ROAD
- 8 FRANKLIN
- 9 MUIR
- 10 MUIR
- 11 WALNUT CREEK
- 12 PLAZA
- 13 RICHMOND
- 14 RICHMOND
- 15 YERBA BUENA
- 16 STOCKTON STREET
- 17 SUNSET
- 18 TWIN PEAKS
- 19 FORT MASON
- 20 FORT BAKER
- 21 WALDO
- 22 POSEY TUBE
- 23 FERRY SUBWAY
- 24 BAY SHORE
- 25 TIBURON

- HIGHWAY
- WATER
- WATER
- WATER
- RAILWAY
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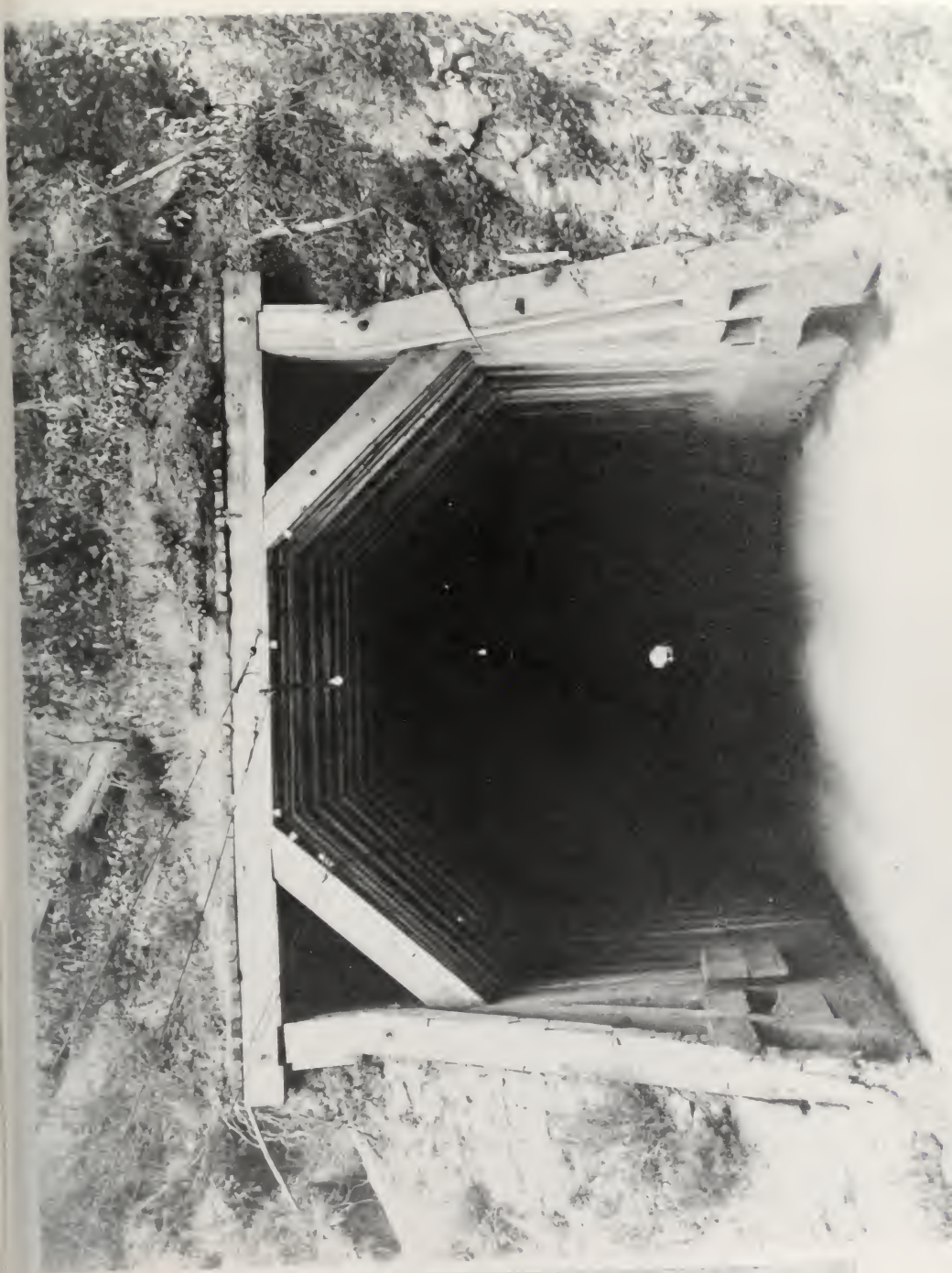


Picture #1

April 15, 1938

South side of West Portal,
old inter-county Tunnel.

Picture by George W. Derbfus.



Picture #2

April 15, 1938

West Portal of old inter-county tunnel.

Picture by George W. Derbfus.

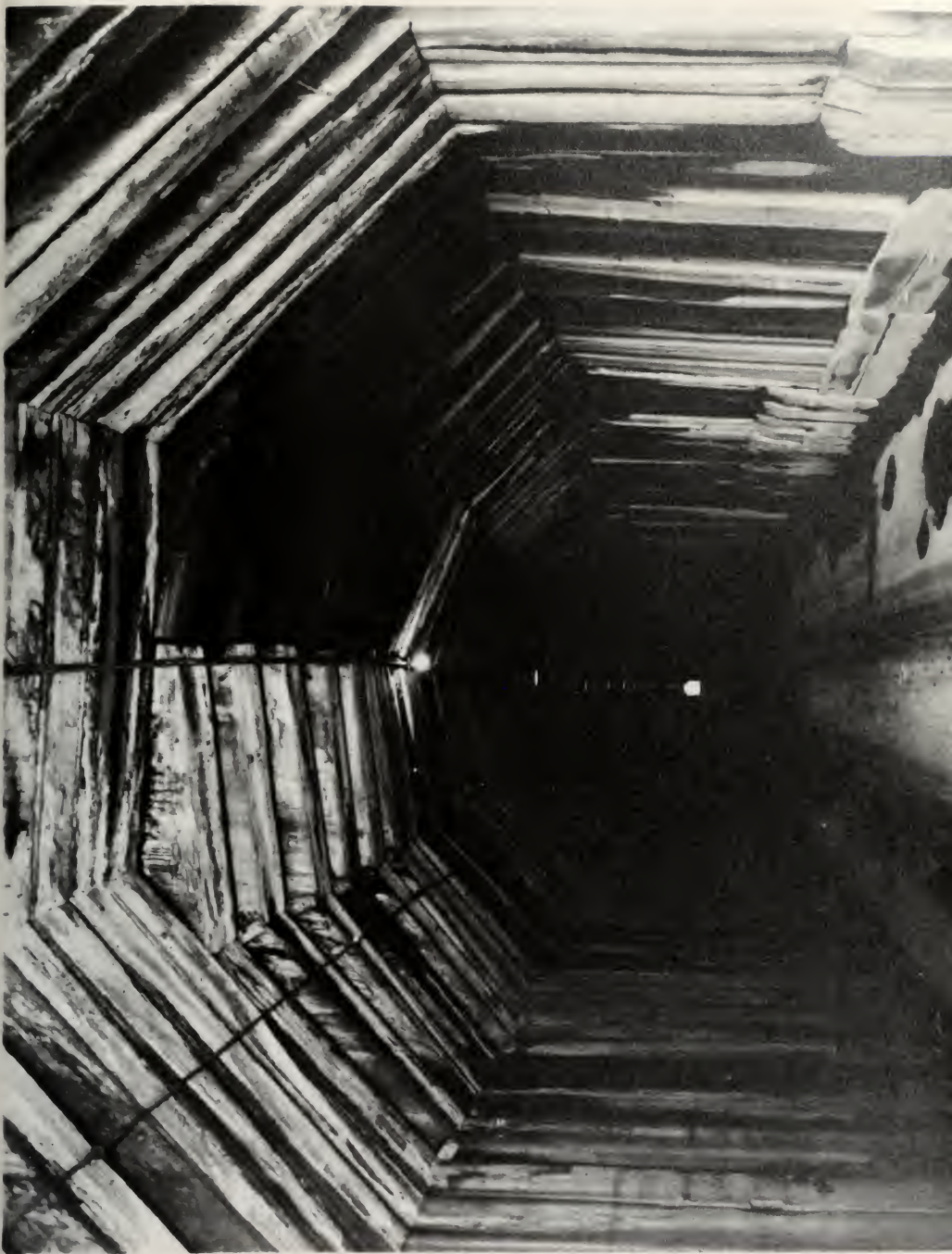


Picture #5

April 15, 1938

North side of West Portal, old inter-county Tunnel.

Picture by George W. Derbfus.

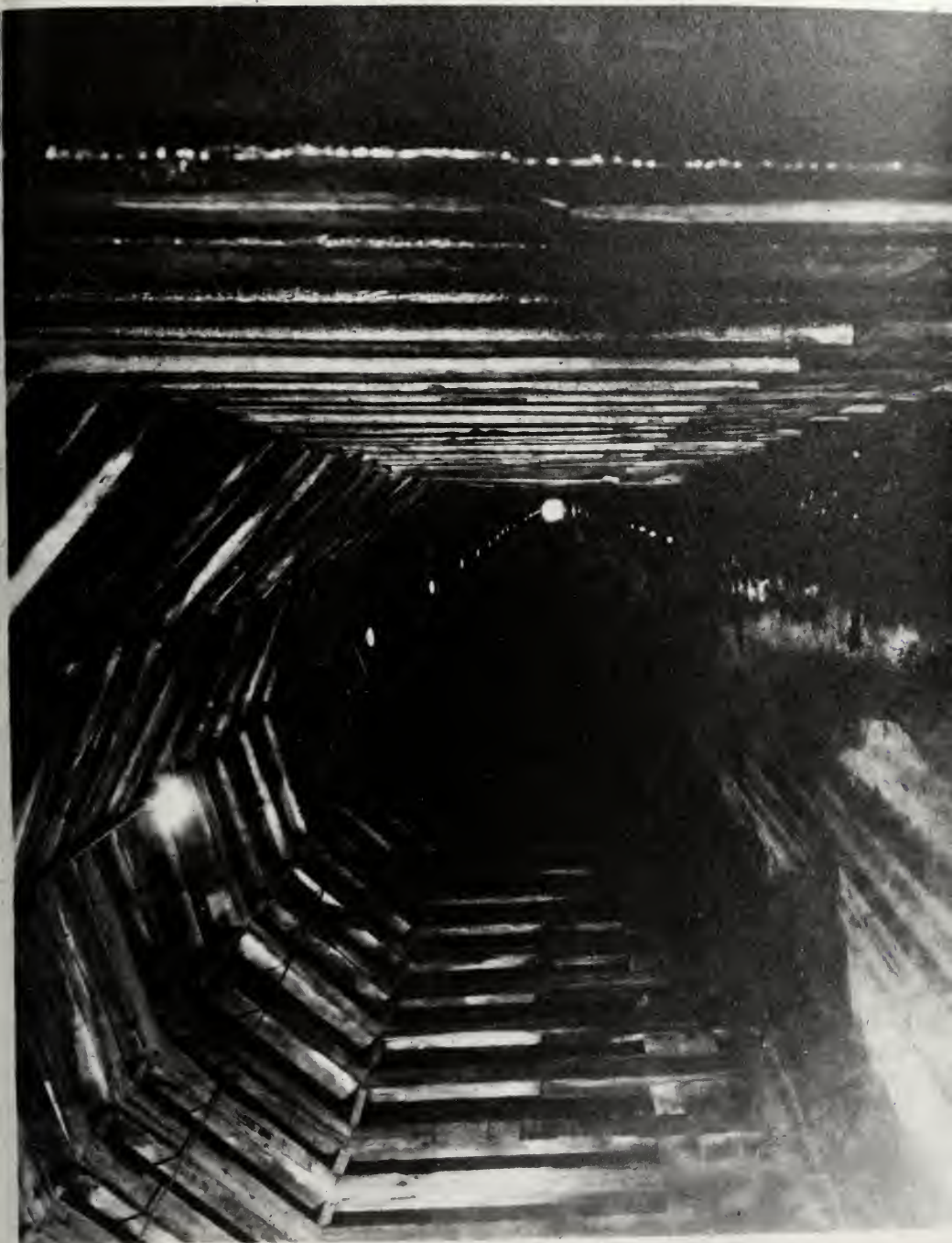


Picture #4

April 15, 1938

Camera about 10 ft. from West Portal,
looking Easterly, in old inter-county
Tunnel.

Picture by George H. Herbfus.



Picture #5

April 15, 1938

Camera 75 ft. from West Portal, looking
Easterly, in old inter-county Tunnel.

Picture by George W. Derbfuz.



Picture #6

April 15, 1938

Camera 75 ft. from West Portal, looking
Westerly, in old inter-county Tunnel.

Picture by George W. Derbfus.



Picture #7

April 15, 1938

Camera 190 ft. from West Portal, looking
Westerly, in old inter-county Tunnel.

Picture by George W. Derbfus.



Picture #6

April 15, 1938

Camera at County line, 430 ft. from West Portal; view of North side, old inter-county Tunnel, looking Easterly.
Picture by George W. Derbfus.



#9 Picture

April 15, 1938

Camera at County line, 430 ft. from West Portal; view of South side, old inter-county Tunnel, looking Easterly.
Picture by George W. Derbfus.



Picture #10

April 15, 1938

Camera 630 ft. from the West Portal; view
of South side, old inter-county Tunnel,
looking Easterly.

Picture by George W. Derbfus.



Picture #11

April 15, 1938

Camera 505 ft. from the West Portal;
looking Easterly, in the old inter-
county Tunnel.

Picture by George W. Derbfus.



U. S. DIST. CT. N. D. CAL.

No. 20101-R.

Picture #12

April 15, 1938

Deft's

EX. No.

C.

<Photo #1 to #12.>

FILED April 19, 1938.

WALTER B. MALING, CLERK

J. A. Schaerher

-4

DEPT. OF JUSTICE

Camera 680 ft. from West Portal; view of
South side, old inter-county Tunnel,
looking Easterly.

Picture by George W. Derbfus.

DEFENDANT'S EXHIBIT D

PRELIMINARY REPORT ON THE GEOLOGY
OF THE CLAREMONT TUNNEL

Introduction

The following report has been designed with a view towards forecasting in so far as possible the nature of the rocks and rock conditions which will be encountered in driving the Claremont Tunnel. Scientific details are largely omitted except where they have a direct bearing on the engineering problems involved. Special emphasis is placed on the nature, hardness, and "standing ability" of the rocks which will be encountered; on the thickness of the various types of rocks along the line of the tunnel; on the location of faults of consequence; and on the possibility of encountering water and gas.

The data presented herein is based on field work carried out by the writer during April, 1926. Field observations were accurately tied to the survey following the surface line of the tunnel. Such errors as enter the work therefor, are due to observation and interpretation rather than to inaccurate location. Needless to say, imperfect surface exposures of the rocks make certain errors inevitable. Limits of error will, where possible, be indicated at appropriate places in the following description.

GEOLOGY OF THE CLAREMONT TUNNEL Sta. 0 to 66.

Thickness 6600 feet. Orindan formation. Composed predominantly of loosely cemented gravels and sandstones, and some shales. These rocks are part of the same group as now exposed in the west heading (first 1100 feet) of the Lafayette tunnel, and may reasonably be expected to show the same characteristics. The relative abundance of gravels, sandstones and shales will approximate the proportions of these rocks shown in the Lafayette tunnel, though a slight increase in the proportion of gravels may be expected to the westward.

These rocks should break and muck easily. Occasional slabs will break along the bedding planes, but with reasonable care such oversize breakage should be occasional only.

For the first 1000 feet the rocks may be expected to be rather badly broken due to the thin back, the cover being in general less than 100 feet through this distance, averaging about 50 feet. **PROBABLY MORE OR LESS TIMBER WILL BE REQUIRED HERE.** Beyond Sta. 10, however, and especially beyond Sta. 19, the back rapidly thickens, so that the solidity of the rocks and **HENCE THEIR STANDING ABILITY SHOULD CONSEQUENTLY INCREASE.**

No great quantity of water should be encountered between Sta. 0 and 66, though some seepages will undoubtedly be met with.

Minor faults may occur within this zone but should cause no difficulties. No surface evidence exists to suggest the presence of any pronounced faults cutting this part of the tunnel, except possibly in the vicinity of Sta. 23. Due to a thick cover of brush and poor exposures, the surface evidence at this place is not conclusive.

The Orindan formation is folded into an anticline (arch), the crest of which occurs between Sta. 42 and 50. (See section.) Due to variable thickness of the formation, the base of the Orindan cannot be definitely determined here, so that a possibility exists for encountering older underlying rocks between the above mentioned stations. The nature of these cannot be forecast. The writer is of the opinion however that the base of the Orindan will not be penetrated, the tunnel remaining entirely within that formation.

The location of the western limit of the Orindan (Sta. 66) is probably accurate within plus or minus 100 feet.

Sta. 66 to 88+50.

Thickness 2250 feet. Composed predominantly of lava flows with some interbedded fragmental volcanic material (tuffs and agglomerates) and gravels. (For details see section.)

The lavas (chiefly andesites) consist of rocks which are both hard and tough. Most of the rocks between Sta. 66 and 88 will be of this nature. THESE ROCKS WILL PROBABLY STAND

WITH A MINIMUM OF SUPPORT, BUT DUE TO JOINTING MAY TEND TO BREAK BLOCKY.

Intercolated with the lavas, a certain amount of interbedded fragmental material may occur. The position of such layers cannot be accurately predicted. Such material, if encountered, may be only slightly softer than the lavas themselves, due to the contained lava fragments.

A gravel horizon occurs interbedded with the lava flows. The gravels are entirely similar to the gravels present in the Orindan formation. Approximately 200 feet of gravels should be encountered (about Sta. 68 to 70) after the first 200 feet of lavas have been passed through from the east. The thickness of gravels encountered may be modified by faulting. The same gravel horizon, probably not over 100 feet thick, should again be encountered about 150 feet from the western edge of the lavas (Sta. 86 to 87). Since the gravels wedge out westward, the thickness here cannot be determined exactly.

A major fault cuts the line of the tunnel and should be encountered at about Sta. 68. This fault cannot be located on the surface closer than about 200 feet; nor can its dip be accurately determined, other than that it is steep to the east. In consequence the indicated intersection with the tunnel may be in error by several hundred feet. The intersection was obtained using a strike of N. 12 E., and a dip of 80 degrees east for the fault.

Abundant water may be expected from the lavas between Sta. 66 and 88. This question will be discussed later under the heading "Water Problems".

The western limit of the lavas, Sta. 88 plus 50, is located with a probable accuracy of about 100 feet.

Sta. 88+50 to 108.

Thickness 1950 feet. Orindan formation. The same group of rocks as occur between Sta. 0 and 66. THE CONDITIONS HERE SHOULD BE QUITE SIMILAR EXCEPT THAT THE ROCKS ARE PROBABLY MORE PREDOMINANTLY LOOSELY CEMENTED GRAVELS. LITTLE TIMBER SHOULD BE REQUIRED SINCE THE ROCKS SHOULD STAND WELL. No great amount of water should occur.

Sta. 108-118.

Thickness 1000 feet Claremont cherts. Consist of thin layers (one to three inches) of hard but brittle cherts, interbedded with thin ($\frac{1}{4}$ to $\frac{1}{2}$ inches) layers of shale. A few beds of sandstone and extremely hard tough limestone occur; thickness one to three feet.

The cherts will be hard on drill steel, but due to their brittleness should break well. THEY SHOULD STAND WELL AND REQUIRE LITTLE TIMBER. Since the beds stand practically vertical no trouble from slabbing should occur.

The cherts are bounded on the west (Sta. 108) by a major fault line. The fault is located with a probable accuracy of 50 feet.

Sta. 118 to 171+50.

Thickness 5350 feet. Chico sandstone. Comparatively soft compact massive sandstone, with only occasional thin beds of shale and gravelly sand. These sandstones should drill, break and muck easily. They should contain comparatively little water, though occasional seepages may occur. Where dry these rocks should stand well and require little support. Due to the massive nature of the beds, slabbing should be infrequent. Altogether this group of rocks would seem ideal for tunneling purposes.

The western boundary of the Chico sandstones is a prominent vertical fault. Under ordinary conditions this fault could be accurately located on the surface. Unfortunately the surface here is a closely built up section of Claremont, and in consequence of the houses, gardens, and other surface improvements, the position of the fault may be in error by as much as 200 feet.

Sta. 171+50 to 180+60 (Portal).

Thickness 910 feet. Largely if not entirely silica-carbonate rock. This rock when fresh is of moderate hardness, BREAKS WELL AND STANDS WELL. Near the surface, however, IT WEATHERS EASILY AND MAY BE MORE OR LESS SOFTENED, DECOMPOSED AND BROKEN UP.

Silica-carbonate rock is well exposed between Sta. 181 and 184, but no exposures occur between Sta. 171+50 and 181, due to surface improvements, houses, gardens, etc. Silica carbonate rock may occur through this interval, or its place may be taken by Franciscan sandstone, a moderately hard, tough rock where solid and fresh, but inclined to be rather highly sheared and fractured near the surface. **TIMBERING WILL PROBABLY BE REQUIRED THROUGH PART OF THIS DISTANCE SINCE THE BACK IS NOT GREAT.**

Gas Problems.

Through two portions of the tunnel all precautions should be taken to guard against gas.

Sta. 108 to 118.

The Claremont cherts between these stations belongs to the formation which is the source of much of the oil in California. The cherts of this belt, even on the surface, have an appreciable bituminous odor. While the structure here is not favorable for the accumulation of great quantities of gas, it is practically certain that some gas will be encountered.

It will be recalled that the explosion which occurred in the San Pablo-Wildcat tunnel of the East Bay Water Company a few years back resulted from gas derived from this same group of rocks, and under very similar structural conditions.

Sta. 42 to 50.

The rocks which may be reasonably expected here, the Orindan formation, are not in themselves a source of gas. But the structure of these rocks between the stations indicated is favorable for the accumulation of gas in quantity. The tunnel certainly passes close to the base of the Orindan, if it does not actually penetrate it. The rocks beneath the Orindan (nature not determinate but possibly the Claremont cherts) may be looked upon as a potential source of gas. If conditions are such that gas does occur as high up as the tunnel, it might well occur in quantity, while the occurrence of gas here is purely a hypothetical condition, it is a possibility which should certainly be guarded against.

Water Problems

Sta. 66 to 88+50.

Water in quantity need not be expected except between Sta. 66 and 88. The lavas, the predominant rocks between these stations, are prone to be traversed by numerous fractures, the result of folding and also shrinkage on cooling. The rocks therefore tend to contain numerous open waterways. The interbedded fragmental volcanic material likewise tends to be porous.

The structure between Sta. 66 and 88, that of a syncline or basin, is decidedly favorable for the accumulation of water, diverting all the surface drainage of the area underlain by the lavas towards the trough of the fold.

It may be pointed out that the wells of the East Bay Water Company in upper Wildcat Canyon, and also the numerous springs which occur on the east slope of the range (Sta. 50 to 60) derive their water from these lavas. The flow of water from the lavas which may be expected in the tunnel may be expected to have some effect on the ultimate producing capacity of these springs and wells.

Water derived from these lavas in the tunnel may be expected to be quite free from surface pollution, and might well be added to the water supply of the Utility District.

Faults

Three important faults will be intersected by the tunnel.

The tunnel will cut Pinole fault at Sta. 68 (possible error of location 200 feet). The movement on this fault, which dips steeply to the east, has been such that the east side has moved up and south with respect to the west side.

The tunnel will cut the Wildcat fault, which again appears to dip steeply to the east, at about Sta. 108. This location is probably accurate to 50 feet. The east side of the fault appears to be the downthrown side. The horizontal component of motion is not known.

The tunnel will cut an un-named, approximately vertical fault at about Sta. 171+50. The possible error of location of this fault may be as much as 200 feet. The direction of movement on this fault is not certain, but is probably up on the east side.

Summary of Geology of Claremont Tunnel.

Sta.	Thickness	Nature
0 - 66	6600	Gravels, sandstones and shales similar to those in the west heading of the Lafayette tunnel. Orindan formation.
66 - 88+50	2250	Predominantly lavas with some interbedded fragmental volcanic materials and gravels.
68	—	Pinole fault. Location may be in error by 200 feet.
88+50 - 108	1950	Gravels, Orindan formation.
108 - 118	1000	Claremont cherts.
118	—	Wildcat fault.
118 - 171+50	5350	Chico sandstone.
171+50	—	Fault; location may be in error by 200 feet.
171+50 - 180+60	900	Silica-carbonate rock; possibly some Franciscan sandstone.

Respectfully submitted,

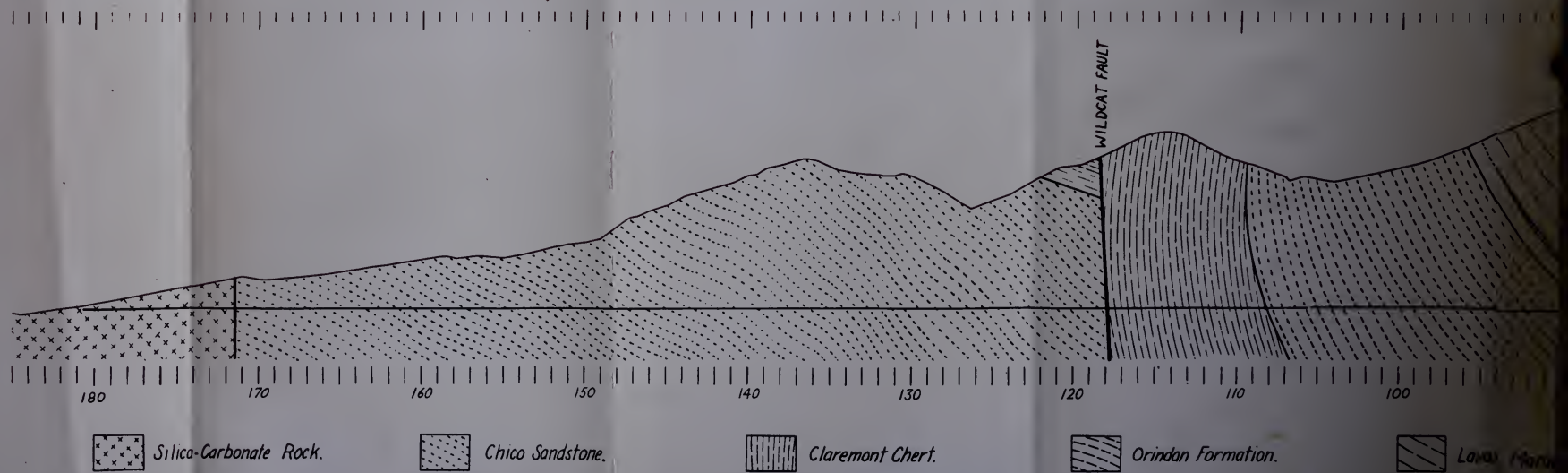
(Signed) CHARLTON D. HULIN.

University of California,
Berkeley, Calif.

[Endorsed]: U. S. Dist. Ct. N. D. Cal. No. 20101-R. Deft's Ex. No. D. Filed April 20, 1938.
Walter B. Maling, Clerk. By J. A. Schaertzer,
Deputy Clerk.

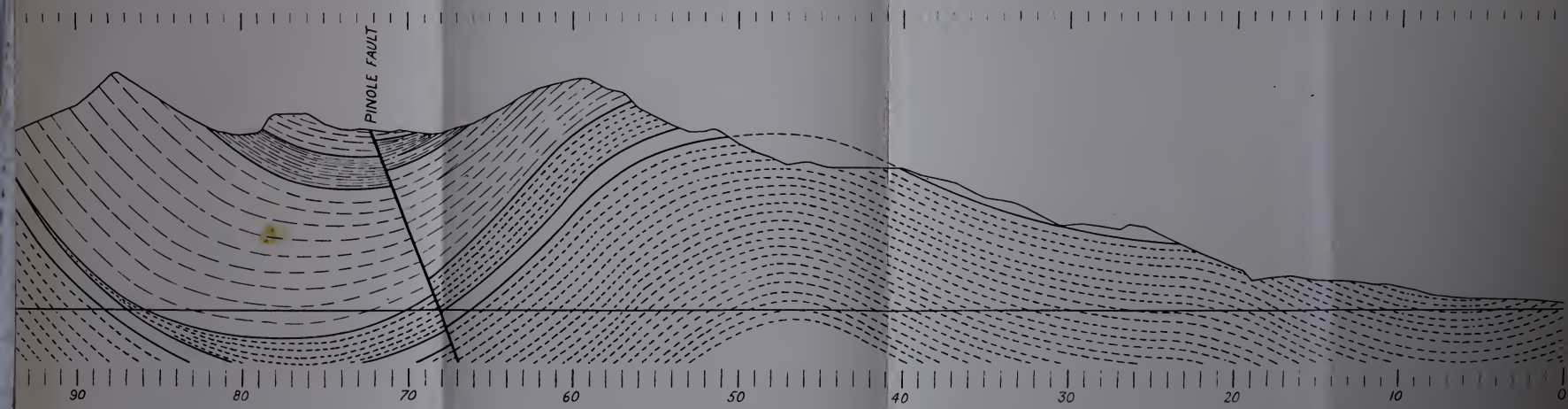
CLAREMONT TUNNEL

EAST BAY MUNICIPAL UTILITY DIST.



NNEL

Y DISTRICT



Moraga Formation.



Conglomerate, Moraga Formation.



Limestone.



Siestan Formation.



Bald Peak Basalt.

Carlton D. Hulm
April 1926

DEFENDANT'S EXHIBIT E

Oakland, Cal.

Feb. 26, 1929

Prof. Geo. D. Louderbach,
University of California,
Berkeley, Cal.

My dear Professor—In the following summary of conditions and methods used in meeting them, in the excavation of the Claremont tunnel, I have endeavored to give Station numbers where I had such in my possession; otherwise set numbers.

It has appeared to me to be better for me to follow the order of progress rather than that of stationing, although that involves working against the station numbering.

We encountered a small amount of water after penetrating about twenty feet from the west portal, but the ground was firm enough to avoid spile driving or breast boarding.

At approximately one hundred feet in, as I now recall it, we encountered the formation noted in Mr. Hulins report as silica-carbonate rock. This was blocky, overbreaking in many cases, considerable.

At a distance in of approximately seven hundred feet, sand and well rounded gravel, the latter of a probable maximum dimension of approximately three inches, was encountered, carrying some water—probably about forty gallons per minute. No shooting was done in this formation, which ex-

tended for approximately one hundred sixty-five feet. There was some clay in the sand and gravel content; but the standing condition was favored by an overlying strata of almost pure clay that almost followed to line of top of cap.

When we passed thru this, we encountered about twenty feet of a rather easy breaking reddish rock that required light blasting, but offered no unusual difficulties.

The contact beyond this formation was a sort of "gumbo" that mined easily and stood well for a short period, when swelling began and it was necessary to relieve pressures wherever possible to, prevent breaking of the timber. In some cases this corrective was not sufficient, and retimbering had to be done intermittantly for about eighty or a hundred feet. This heavy, constant pressure gradually lessened as we proceeded with our excavation up to station 164 plus 00.

At that point we encountered better standing ground, that offered no unusual difficulties. Slight quantities of water was encountered at intervals up to about station 160, where the shale began to show the presence of gas in small quantities. The gas increased slightly as we proceeded forward, being most noticeable where the shale formation was broken with soft sandstone carrying a small quantity of water.

The shale worked easily and stood well for a short period, giving us time to erect six foot sets after mucking out, the spiling was placed immediately after shooting.

At set 636 a run of small particles of comparatively clean sandstone, forced out by a quantity of water sufficient to flood the tunnel to a depth of a foot for a distance of several hundred feet occurred at the end of the spiling just as preparations were being made to erect the set. About three hours thereafter there was a gas explosion that injured a number of workmen. It appears that the gas ignited as it was entering the tunnel, because the flame concentrated about the point from which the run came, and appeared to have pressure behind it.

From that point forward gas and water appeared together when the disintegrated sandstone was encountered, tho in lesser quantities.

A year or so after having passed thru this formation weight began to show in the vicinity of sets 330 to 345, and 562 to 586, 619 to 634, 816 to 823, 984 to 1002. Relieving sets were erected to hold the ground.

At station 123 plus 31 to 121 plus 91, from whence we merged from the Chico sandstone section as noted by Mr. Hulin, to the Chert, concrete invert and arch were poured to take care of a ground swell and consequent weight, and to act as a deterrant to a spread of fire if oil were encountered in the cherts.

We had made it a plan to stop excavation and pour invert whenever water of sufficient quantity was encountered to make track maintainance and train operation difficult. As a consequence the invert was concreted to station 121 plus 91 when we attacked the main body of chert.

When excavation was resumed at the last named station we began to feel pressure on our right. We had proceeded about twenty-four feet when the pressure became so great that relieving sets were erected to support regular four foot sets. Suddenly water broke out alongside in a quantity of probable two hundred gallons per minute, and the pressure was relieved.

At set 1039 we encountered a large flow in a badly broken chert formation. For a few hours our pumps, having a rated capacity of eight hundred gallons could not handle it. This reduced in quantity to five hundred eighty gallons within seven hours, when the reduction apparently ceased. It was necessary to drive spiling and erect breast boards from this set 1052, when the chert showed a tendency to stiffen.

Blasting was permissible then to set 1054 when we again encountered water and badly broken chert, forcing us to again resort to spile driving and breast boarding. At set 1064 we again reached former ground which permitted blasting until set 1065 was reached when a further addition of water and bad ground forced spile driving again. At set 1069 we appeared to have found better going, tho we had later on to erect spiling before blasting the lower part of the face. This condition prevailed until the point of set 1085 was reached.

From there on until the chert was passed the ground progressively stiffened, and some heavy blasting was necessary to break the vertical chert.

Timbering was spaced up to a distance of twelve feet between sets where ground was standing well. At sets 1136 to 1139 we later had to erect two relieving sets.

Generally speaking this vertical chert did not take weight after we passed thru it.

Very little oil was found in the chert, and such as was observed was more apparent in the slippery sand following the water, which generally showed in the broken formation as we approached nearer the firmer cherts.

Leaving the chert we entered the Orindan, which was very firm and hard to break, as was the cemented gravels that frequently appeared. These materials gradually grew softer as we left the chert behind and approached the lava. Most of the oil and oil gas we encountered was found on the contact of the orindan with the cemented gravel. As we approached nearer the lava the gas decreased and the gravel increased, with water dripping in increasing amount. The orindan section, generally stood well under six foot timber spacing, but broke blocky, and did not muck well. One mucker man expressed it that it was like mucking wool.

When it was apparent we were approaching near to the lavas and water began to show evidence of decided increase, we discontinued excavation long enough to bring our concrete invert to the then face.

On resuming mining, our second shot brought us into the lava. The contact was reasonable soft, but the ground stiffened to such an extent that we found

it advisable to discontinue the use of jack-hammers and proceed with leyners. The ground drilled well and broke well and, tho containing some water, gave promise of continuing leyner ground. At station about 89 plus 00 one of the shots in the right breast penetrated a volcanic ash deposit lying in a sufficiently loose state with a large amount of water, that within three hours the face had broken in against our efforts to hold it and the ash accompanied with a flow of fourteen hundred gallons of water per minute partly filled the tunnel for a distance of sixty feet before a sufficient bulkhead to hold it could be erected. The pressure exerted longitudinally forced collar braces from one and one half inches to complete penetration of some of the eight by twelve timbers. The ash surrounded the sets so that none of them were completely knocked down.

We dropped back to Station 94 plus naught eight to 94 plus forty-eight where we had encountered very heavy swelling ground and had found full circle sets at two foot spacing, constantly relieved, not holding the ground, and concreted this section while awaiting stability of the volcanic ash section, and hoping, in the meantime, that water pressure would reduce. The quantity dropped to nine hundred gallons, and it appeared that it might be cut off from the main tunnel by a short drift to our right, which then appeared the direction of the supply. This drift materially relieved the pressure at the face for a few feet and allowed us to excavate the ash to our former face without much difficulty.

However, when we erected our breast boards and began to press forward we found the main water supply was coming from a point forward, and apparently in the line of bore. As we drove our spiling, each one a couple of inches, until a penetration of six to eight feet was accomplished, we attempted to open a small hole in the breast board at the last set and advance a new one four feet ahead. This often took hours, as the runs of fine ash with an ever increasing quantity of water made it almost impossible to make the slightest opening in our former breast boarding. We gradually advanced a small board on the end of a stull to a point four feet distant. This was our most difficult feat, and the new breast board, however small, would aid in stiffening the new face. The next board, also advanced at the end of stull was then placed, after many attempts, each stull being nailed to the cap of the last set. When two feet of new breast was well boarded, the new breast boards were put in at an elevation lower than the old breast board four feet back so that the fine material could not flow out during the placing of the new board. During all of this time we had run after run of fine material, that it took all our efforts to check—tho the total losses were never enough to cause much of a void overhead, or permit a sudden drop of material. When the new breast board was completed two feet down, one or the other of us would creep over the old breast board and place the next lower new board. This sometimes resulted in hasty retreats and near strangulation as

the runs and water attempted to engulf its intended victim; and on at least one occasion emergency pull by the remainder of the men present saved burial.

After getting thru this ash deposit, holes were made in the overhead spiling, sufficiently large to loosen and cause to run such overlying fine material as was necessary to bring large boulders that showed evidence of being there, down on the top of the spiling to forestall a possible future run and drop of material that might cause a collapse of the timbering and resultant trapping and drowning of the crew. These boulders now rest on the timbering and act as a reinforcement against a drop of others.

We encountered an ever increasing quantity of water until three thousand nine hundred twenty gallons per minute were measured on the wier. As we proceeded we encountered new flows, and the area left behind, gradually and fairly rapidly, decreased.

Spile driving and breast boarding were again necessary in broken formations carrying large quantities of water at sets 1612 to set 1606, Stations 82+92 to 82+82, 82+06 to 81+75, 80+14 to 79+84, 78+06 to 77+79, 76+28 to 76+01, 74+98 to 74+55, 75+52 to 75+27, 73+25 to 72+74, tho at no other point than the one in vicinity of Station 89+00 did we have runs that we found it difficult to control.

In some of the latter breast board places we could advance our spiling with coal picks and moils, and breast board as we pulled the muck away from the face. At other times we could breast board half way down the face and lightly shoot the toe to make mucking easier.

In cases where we found enough clay present, the star steel was difficult to free, we found augers worked better. Track laying under twelve to eighteen inches of water, we found difficult, and all timber and lagging and collar braces had to be "tied down" to prevent them from floating away and derailling trains. Wedges were a constant menace, as their size made them hard to hold and easy to float.

When we re-entered the orindan, we found it reasonably soft and blocky. Very little water and no gas penetrated it.

Very respectfully yours,

L. M. LARSON.

[Endorsed]: U. S. Dist. Ct. N. D. Cal. No. 20101-R. Six Companies vs. J. H. Dist. No. 13 etc. Deft's Ex. E. Filed April 20, 1938. Walter B. Maling, Clerk. By J. A. Schaertzer, Deputy Clerk.



U. S. DIST. CT. N. D. CAL.

No. 20101-R

Deft's EX. No. 1
FILED April 21, 1938

WALTER B. MALING, CLERK

W. B. Schaefer
D. R. Y. CLERK

Picture #6

February 15, 1936

View of Right side of DOWNGRADE TUNNEL.
The long space above the wall plate is
from Sta. 124+85 to Sta. 124+94.
Picture by George W. Derbfus.



U. S. DIST. CT. N. D. CAL.

No. 20101-R

Picture #11

February 15, 1936

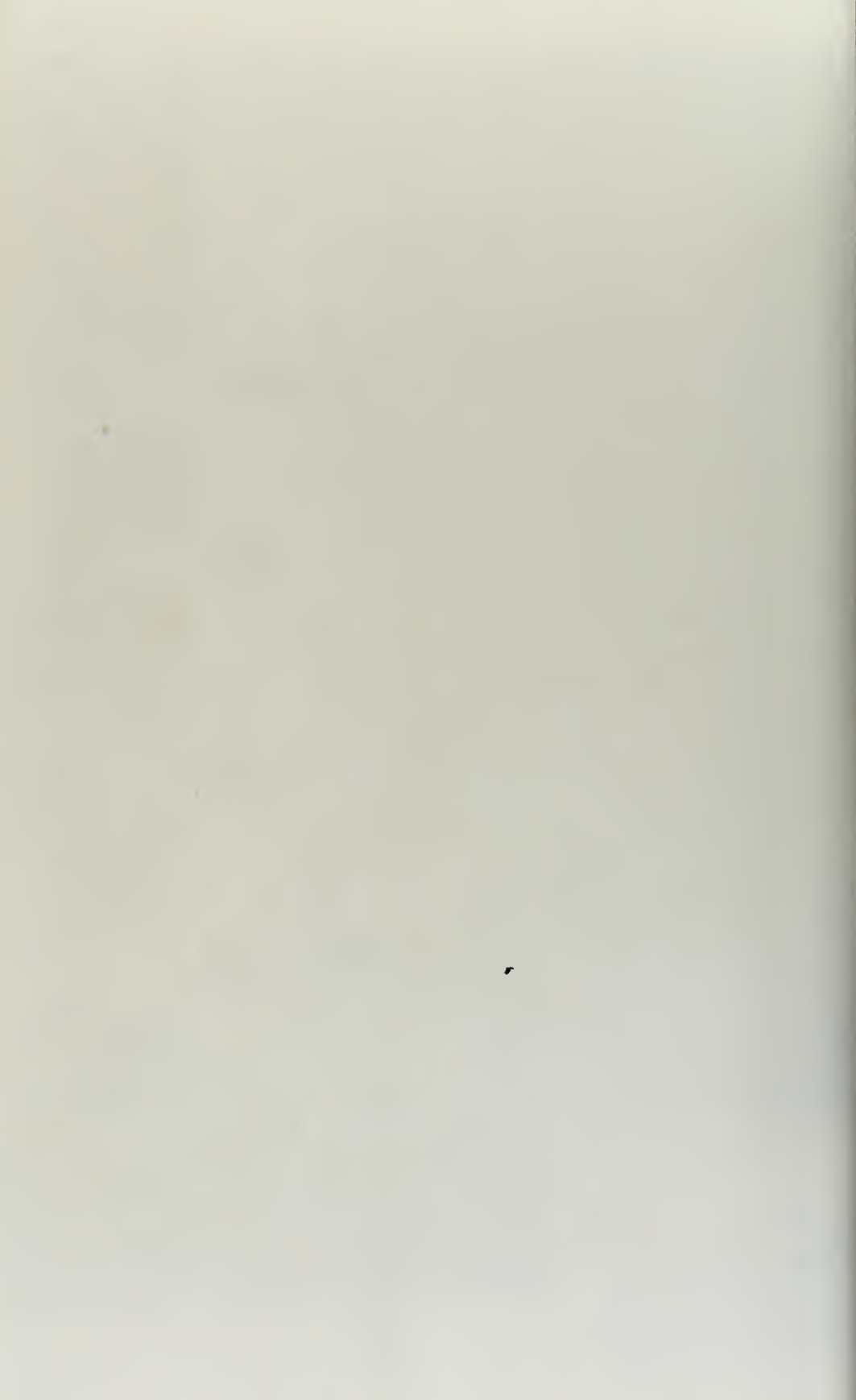
Looking ahead at roof of DOWNGRADE TUNNEL.
The long space is from Sta. 124+85 to
Sta. 124+94.

Picture by George W. Derbfus.

Walt's EX. No. H
FILED April 21, 1938

WALTER B. MALING, CLERK

W. Schaertzen
4





2-15-36

U. S. DIST. CT. N. D. CAL.

No. 20101-R

Picture #9

February 15, 1936

EX. NO. 9

Deft's
 FILED April 21, 1938

View of timbering on left side of DOWNGRADE TUNNEL. The vertical post left of center is at Sta. 125+53.

Picture by George W. Derbfus.

WALTER B. MALING, CLERK

W. Schaerker
 DEPUTY CLERK



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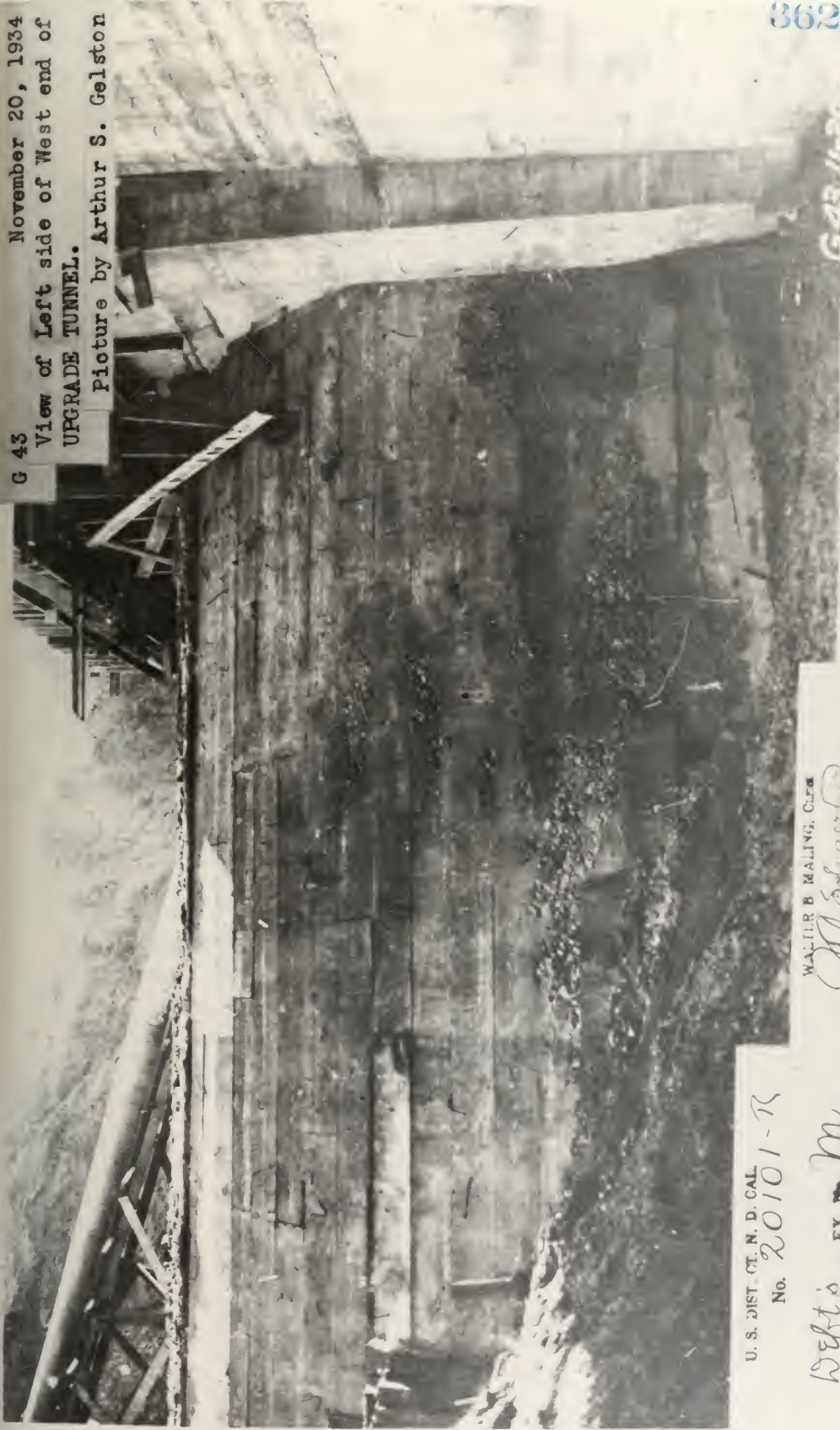
November 20, 1936
View of Left side of West end of
DOWNGRADE TUNNEL.
Picture by Arthur S. Gelston.

20101-K
AL
Drift's C

April 21, 1938
J. A. Schaefer

G 46 11-20-

G 43 November 20, 1934
View of Left side of West end of
UPGRADE TUNNEL.
Picture by Arthur S. Gelston



U. S. DIST. CT. N. D. CAL.
No. 20101-R

Dept's EX. No. *me*
FILED April 21, 1938

WALTER B. HALLING, Clerk

HY

362

DEFENDANT'S EXHIBIT N

(Received August 11, 1934 Joint Highway Dist
No. 13.)

Builders of Low Level Broadway Tunnel

SIX COMPANIES OF CALIFORNIA

Field Office Post Office Box 120
Berkeley, California

August 9, 1934

File: Construction
Time Schedule

Mr. Wallace B. Boggs, District Engineer,
Joint Highway District No. 13,
1448 Webster Street,
Oakland, California.

Dear Sir:

In regard to your recent verbal request for re-
vised construction schedule.

Attached hereto please find chart indicating our
tentative time schedule covering the various sec-
tions of the work as indicated.

Trusting that this will meet your wishes, I remain,
Very truly yours,

SIX COMPANIES OF
CALIFORNIA,

By (Signed) W. R. FONTAINE.

WRF/rww

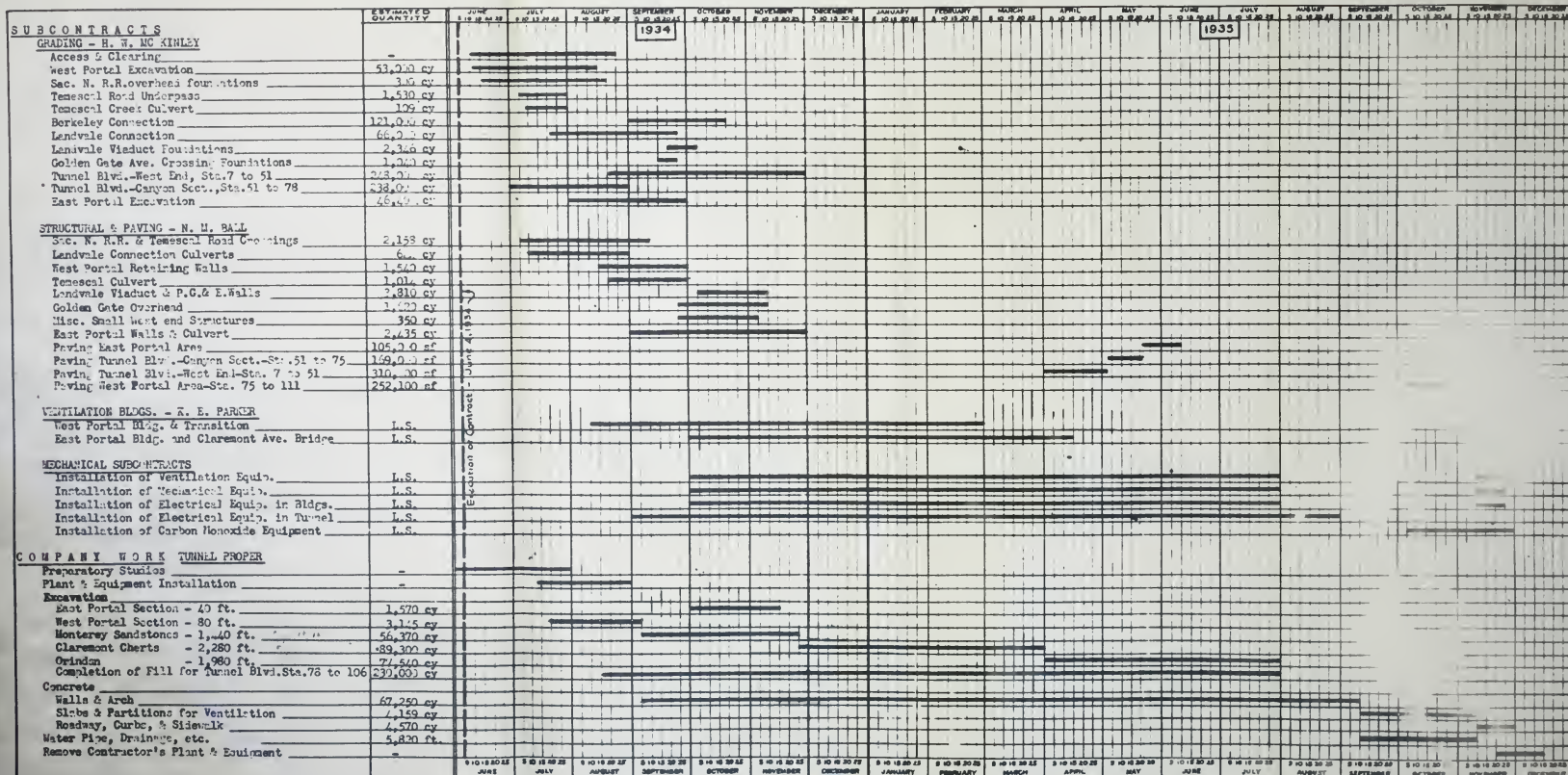
Att. sch.

CC to: Mr. A. J. Orselli

Mr. J. F. Barber

[Endorsed]: U. S. Dist. Ct. N. D. Cal. No.
20101-R. Deft's Ex. N. Filed April 22, 1938. Walter
B. Maling, Clerk. By J. A. Schaertzer, Deputy
Clerk.

CONSTRUCTION SCHEDULE



LEGEND
Estimated _____
Actual _____

Specified
Completion Date
May 25, 1936

DEFENDANT'S EXHIBIT O

(Received Feb. 13, 1935 Joint Highway Dist.
No. 13.)

Builders of Low Level Broadway Tunnel
SIX COMPANIES OF CALIFORNIA

Field Office Post Office Box 120
Berkeley, California

February 12th, 1935

Mr. Wallace B. Boggs, District Engineer
Joint Highway District No. 13
1448 Webster Street
Oakland, Calif.

Dear Sir:

Referring to your letter of February 5th, 1935,
we are inclosing revised construction schedule.

Very truly yours,
SIX COMPANIES OF
CALIFORNIA,

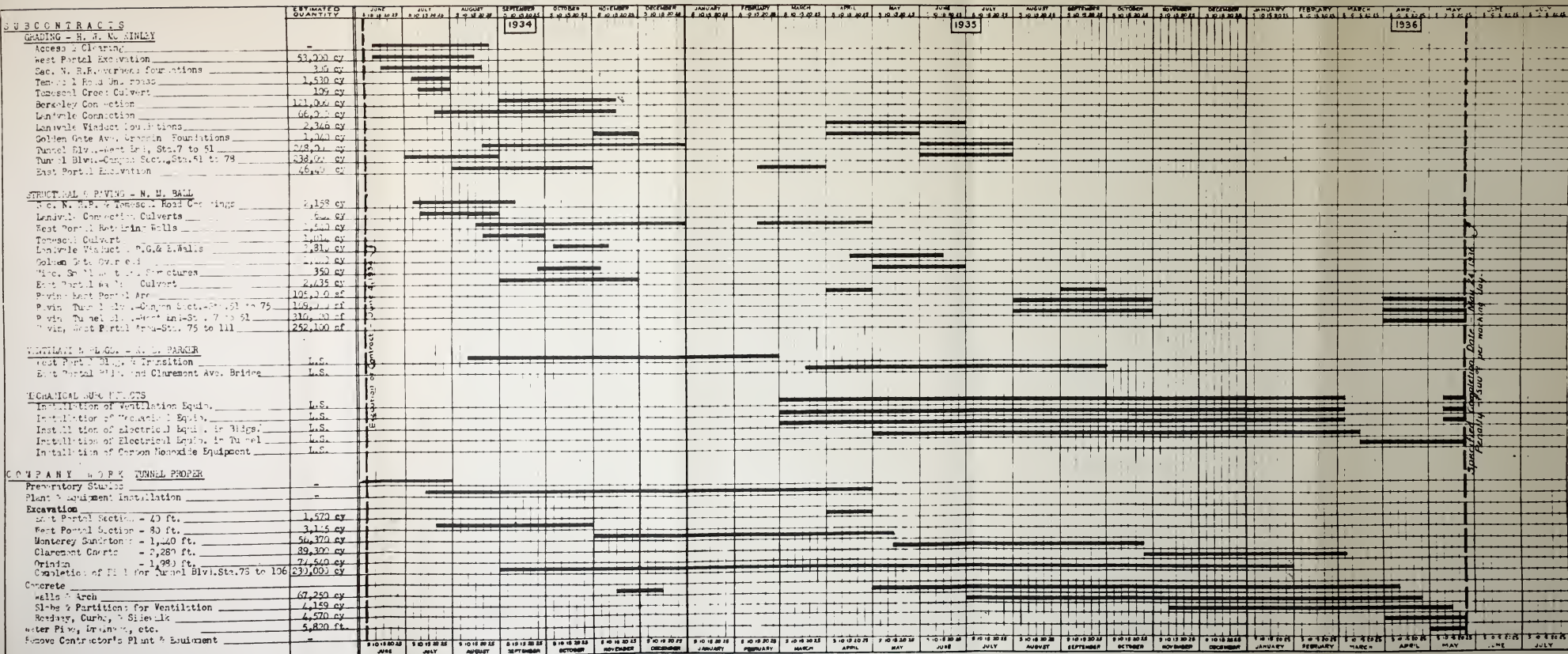
By (Signed) T. M. PRICE,

Project Manager.

TMP:k

[Endorsed]: U. S. Dist. Ct. N. D. Cal. No.
20101-R. Deft's Ex. O. Filed April 22, 1938. Walter
B. Maling, Clerk. By J. A. Schaertzer, Deputy
Clerk.

CONSTRUCTION SCHEDULE



Specify of Completion Date (Month & Year)
 Monthly "Saw" per working day.

LEGEND
 Estimated ———
 Actual - - - - -



DEFENDANT'S EXHIBIT S

(Received Sept. 29, 1934 Joint Highway Dist.
No. 13.)

Builders of Low Level Broadway Tunnel

SIX COMPANIES OF CALIFORNIA

Field Office Post Office Box 120

Berkeley, California

September 28, 1934

Re. Broadway Tunnel

Tunnel Construction

Joint Highway District No. 13

1448 Webster Street

Oakland, California.

Gentlemen:

We enclose herewith one blue print of our Drawing T 15 titled Tunnel Construction and one blue print of Pacific Coast Steel Corporation Drawing T 2 A titled Proposed Location of Splices in Reinforcing Steel.

We attach hereto a schedule of a proposed sequence of operations for approximately the first 100 feet for each tunnel.

These enclosures and the attachment are submitted for your consideration and criticism.

We would appreciate an early appointment with you at some time to suit your convenience so that we can discuss the whole problem with you.

Yours very truly,

SIX COMPANIES OF
CALIFORNIA

By (Signed) T. M. PRICE.

ARM-K

BROADWAY TUNNEL

Sequence of Operations for First 100'

Consider Down Grade Tunnel.

Operation 1 Drive—Timber—Lag—Drifts 1 and 2—First Level.

Operation 2 Drive—Timber—Lag—Drifts 1 and 2—Second Level.

Operation 3 Drive—Timber—Lag—Drifts 1 and 2—Third Level.

Operation 4 Drive—Timber—Lag—Drifts 1 and 2—Fourth Level.

Operation 5 Drive—Timber—Lag—Drifts 1 and 2—Fifth Level.

Operation 6 Drive—Timber—Lag—Drifts 1 and 2—Sixth Level.

Operation 7 Drive—Timber—Lag—Top Drift.

Operation 8 Set Posts P—at a predetermined location, to clear the formwork and concrete to be installed.

Operation 9 Set Studs Q—which will be sawed to detail and shapes, to receive wood form sheathing.

Operation 10 Build wood form sheathing R—to the line of the concrete.

Operation 11 Pour concrete S—to the height of the ledge (indicated by construction joint).

Operation 12 Set Posts P 1-P 2-P 3-P 4—to which will be attached studding Q 1-Q-2-Q 3-Q-4—sawed to detail and shapes to receive wood form sheathing.

Operation 13 Cut Caps T-T 1-T 2-T 3—at points indicated on our Drawing #T-15, and so as to clear the formwork. Remove Posts P 5-P 6-P-7-P-8. Place temporary stulls U—if and where required by ground conditions.

Operation 14 Place Wall Plate V.

Operation 15 Place laminated centering W with its necessary support.

Operation 16 Build wood form sheathing R 1 to the line of the concrete for the complete tunneling.

Operation 17 Pour concrete to the required heights and thicknesses, removing any temporary stulls as the pouring of concrete progresses.

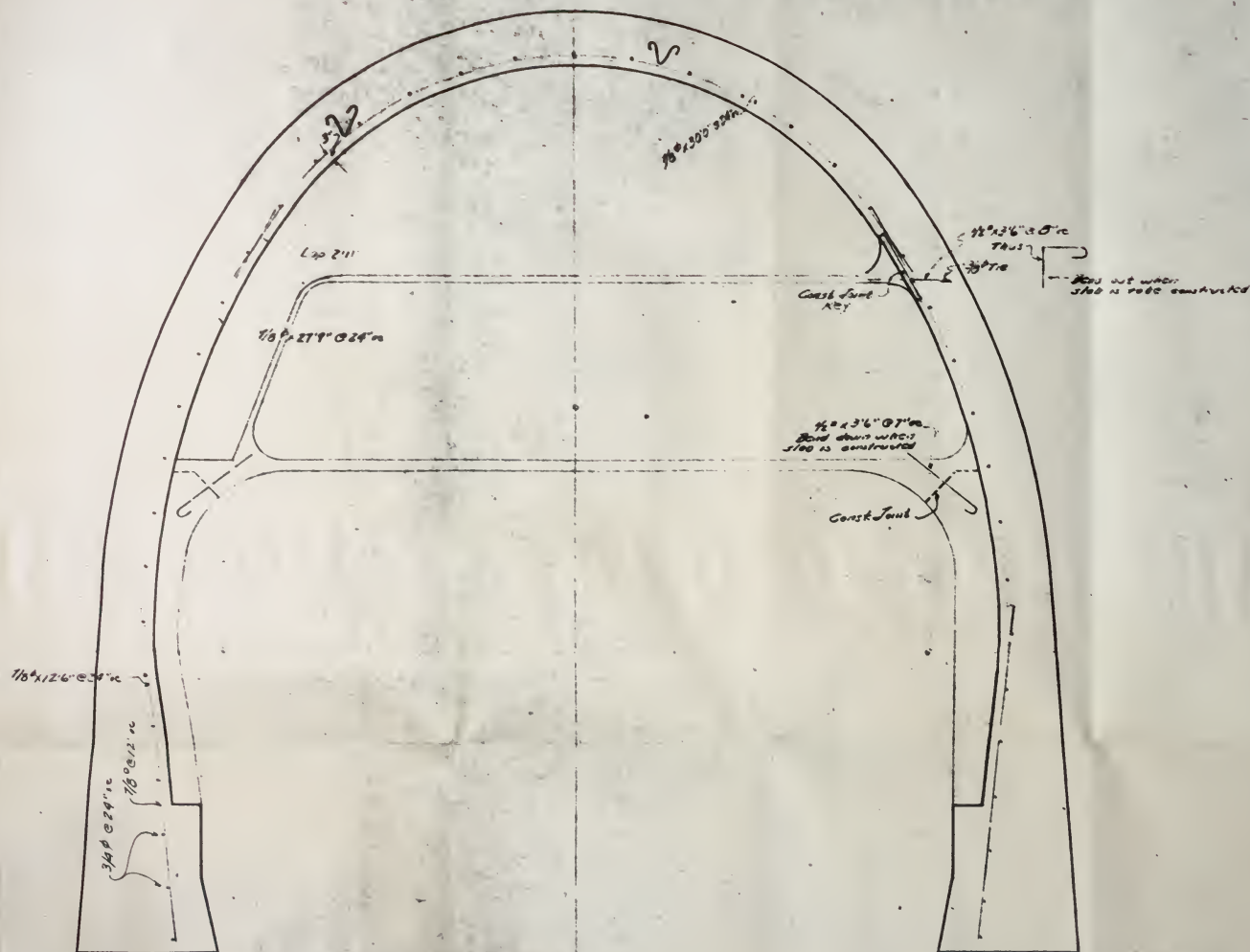
Drawing illustrates:

Operations 1 to 7—on the left hand side of the tunnel section.

Operations 8 to 17—on the right hand side of the tunnel section.

Operations in Upgrade tunnel, similar to those shown on the drawing for the Downgrade tunnel.

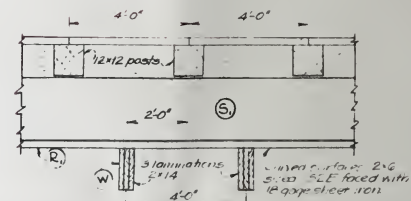
[Endorsed]: U. S. Dist. Ct. N. D. Cal. No. 20101-R. Deft's Ex S. Filed April 26, 1938. Walter B. Maling, Clerk. By J. A. Schaertzer, Deputy Clerk.



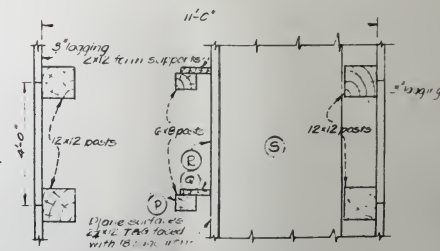
SECTION THRU TUNNEL
Scale 3/8" = 1'-0"

SHOWING PROPOSED LOCATION OF SPLICES
IN REINFORCING STEEL

TUNNEL OPERATIONS FIRST 100' FEET



SECTION B-B
Scale: $\frac{1}{2}'' = 1'-0''$



SECTION: A-A
Scale $\frac{1}{2}'' = 1'-0''$

SIX COMP. INC OF S. FORD A	
BROADWAY TUNNEL	
TUNNELING PROCEDURE	
DESIGNED BY APR 20 1964	CHECKED BY JAN 20 1964

DEFENDANT'S EXHIBIT AA

December 27, 1934

Six Companies of California
155 Sansome Street
San Francisco, California

Gentlemen:

The Government Engineer (Bureau of Public Roads of the United States Department of Agriculture acting by and through C. H. Sweetser, District Engineer, District No. 2) has authorized this District to waive the provisions of subsection (b) of section 1 of paragraph 20 of your contract dated June 4, 1934 with Joint Highway District No. 13 of the State of California to permit you to employ men on tunnel work not to exceed forty (40) hours in any one week, nor more than eight (8) hours in any one day. This waiver is based upon the application filed by you with this District on December 6, 1934 which was transmitted to the Government Engineer in accordance with the resolution of the Board of Directors of this District adopted December 6, 1934.

Joint Highway District No. 13 of the State of California, in accordance with the terms and conditions embodied in said contract and in accordance with the letter of C. H. Sweetser, Esq., District Engineer of District No. 2, said Bureau of Public Roads, dated December 19, 1934, a copy of which is annexed hereto, marked Exhibit "A", made a part hereof and incorporated herein as fully as though set forth herein at length, hereby authorizes and

permits you to employ men on the tunnel work to be performed under said contract not to exceed forty (40) hours in any one week, nor more than eight (8) hours in any one day, and upon all of the conditions and limitations and under the regulations set forth and detailed in said Exhibit "A".

JOINT HIGHWAY DISTRICT
No. 13 OF THE STATE OF
CALIFORNIA,

[Corp't Seal]	By THOMAS E. CALDECOTT, President.
	By HARRY M. STOW, Secretary.

Exhibit "A"

United States Department of Agriculture
Bureau of Public Roads
District No. 2

December 19, 1934.

Mr. Wallace B. Boggs,
District Engineer,
Joint Highway District #13
1448 Webster Street,
Oakland, California.

Dear Sir:

On December 10, 1934 I received from the Secretary of Joint Highway District No. 13 of the State of California a letter dated December 8 enclosing four certified copies of the application of Six Com-

panies of California, a corporation, the contractor now constructing the project of Joint Highway District No. 13 of the State of California, known as the "Broadway Low Level Tunnel", for a waiver of the provisions of Subsection (b) of Section 1 of Paragraph 20 of the contract to permit said contractor to employ men in the tunnel work not exceeding 48 hours per week, together with four certified copies of the resolution of the Board of Directors directing that said application be submitted to the United States Bureau of Public Roads, the Government Engineer under the terms of said contract, for such action as the Government Engineer may consider proper. The Secretary requested me to advise you of my action in respect to said application.

After considering the application of Six Companies of California; the order of T. A. Reardon, Director of the Department of Industrial Relations of California, permitting Six Companies to employ men on tunnel work on the construction of the Broadway Low Level Tunnel not to exceed 48 hours in each week; and letter from R. C. Stillwell, Veterans' Representative, State of California, dated December 10, acting for Mr. John A. Stellern, State Director of the National Reemployment Service, State of California, copy of which is enclosed; Mr. Stellern's letter dated December 15, concurring in Mr. Stillwell's letter, copy enclosed; and after further investigation by the Bureau of Public Roads it is in my judgment not practicable nor feasible, particularly considering safety of workmen, to proceed

with the tunnel work on a thirty (30) hour per week basis. Under no circumstances, however, can forty-eight (48) hours per week be granted, but you are authorized to waive the provisions of Subsection (b) of Section (1) of Paragraph 20 of the contract dated June 4, 1934 between Joint Highway [206] District No. 13 of the State of California and Six Companies of California, contractor, and permit the contractor to employ men on tunnel work not to exceed forty (40) hours in any one week, nor more than eight (8) hours in any one day.

If satisfactory as to details the following classification of men performing work in the tunnel as submitted in the application of Six Companies of California, should be adopted and these men should be carried on a separate payroll:

- Tunnel Shifters
- Tunnel Miners
- Tunnel Timbermen
- Tunnel Shovel Operators
- Tunnel Locomotive Operators
- Tunnel Hoist Men
- Tunnel Powdermen
- Tunnel Brakemen
- Tunnel Chuck Tender
- Tunnel Mechanics
- Tunnel Laborers
- Tunnel Muckers
- Tunnel Vibrators
- Tunnel Tampers

Tunnel Form Men
Tunnel Concrete Men
Tunnel Concrete Finishers
Tunnel Cement Gun Operators
Tunnel Pump Men
Tunnel Concrete Laborers
Tunnel Drill Operators
Tunnel Electrical Workers
Tunnel Labor—Unskilled
Tunnel Plumbers
Tunnel Portable Hoist Engineers
Tunnel Power Shovel Operators
Tunnel Track Men

Yours very truly,

C. H. SWEETSER,

District Engineer.

[Endorsed]: U. S. Dist. Ct. N. D. Cal. No.
20101-R. Deft's Ex. AA. Filed April 26, 1938.
Walter B. Maling, Clerk. By J. A. Schaertzer, Dep-
uty Clerk.

DEFENDANT'S EXHIBIT BB

Builders of Low Level Broadway Tunnel

SIX COMPANIES OF CALIFORNIA

Field Office Post Office Box 120

Berkeley, California

December 26, 1934

(Received Dec. 27, 1934 Joint Highway Dist.
No. 13.)

Mr. Wallace B. Boggs,
District Engineer,
Joint Highway District No. 13,
1448 Webster St.,
Oakland, California.

Dear Sir:

We send you herewith three drawings which illustrate the methods we are now using in the tunnel excavation.

Drawing No. 1 illustrates the method now used in the south tunnel. According to the plan, an excavation or drift 7 ft. wide at the bottom is started at foundation level on each side of the tunnel. This is gradually carried up by means of working platforms to the crown. Muck is worked down to the bottom and is removed by a scraper operated by a hoist. When the excavation has progressed sufficiently the posts and wall plates are put in position, and then the arch segments.

Drawings Nos. 2 and 4 indicate the method in the north tunnel. This is practically a heading and bench method, but the heading is carried out in an annular shape. At the sides the bench level is at the bottom of the wall plate, which rests on the ground and which is placed as soon as the drift is deep enough. A top heading is carried on simultaneously with the wall plate drift and then the earth between is excavated. Segmental arch sets are placed on the wall plates. The muck is shoveled or wheeled and allowed to fall over the sloping face of the bench.

After segmental arches are in, the core is to be excavated by means of the shovel, the face being on a slope for greater stability. When the toe of the face slope is about three feet from the position of the next post, a place for same will be hand excavated and the post set under the wall plate.

In the south tunnel the slope of the face of the core will follow the rake of the most inclined post, and the core will be removed by the shovel.

As to the engineering work required so that we may be able to carry out the above methods: It is proposed to use a chord length of 25 feet in each tunnel and the following work would be required:

South Tunnel:

Establish center line and an offset line on each side 12' 6" from the center line. These lines to be established so that they can be projected forward into the excavation.

For grade, elevations giving the grade of tunnel should be established as follows: a grade 2' 6" above the subgrade or foundation grade of side walls; a grade 2' 0" above bottom of wall plate at its lower inner edge; and a grade 2' 0" above inner face of concrete lining at crown.

North Tunnel:

The work here is similar to that in the south tunnel. The center line of tunnel and offset lines 11' 0" on each side of center line will be required for alignment. For grades, the requirements will be as follows: a grade 2' 6" above bottom of foundations of side walls; a grade 2' 0" above bottom of wall plate; and a grade 2' 0" above top of footing block of top heading, this grade being 9 inches below the inner face of concrete lining at the crown. Grades should be so given that they can be projected with straight edges.

Both the system of excavation and the engineering involved are necessarily subject to change as the ground changes.

Your very truly,

SIX COMPANIES OF
CALIFORNIA

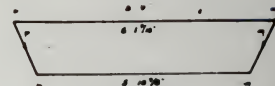
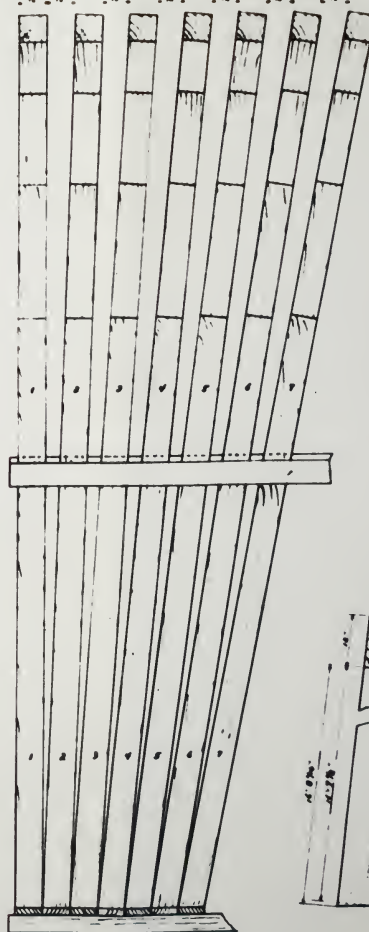
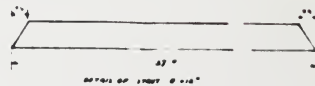
By (Signed) T. M. PRICE,

Project Manager.

[Endorsed]: U. S. Dist. Ct. N. D. Cal. No. 20101-R. Deft's Ex. BB. Filed April 26, 1938. Walter B. Maling, Clerk. By J. A. Schaertzer, Deputy Clerk.

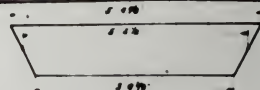


DEPT 10110 BANCURY
PO BOX 200000 WASHINGTON DC



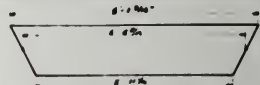
TOP SECRET - C

Page 1 of 1



STRENGTHS & WEAKNESSES

CALL FOR TENDERS FOR WELSHED STEEL



SEGMENTS A: 4 PER SET

These combined with the heavy
military losses of the army
of the United States.

607 50 1

100-443887-100

NOTE: REPORTS MUST BE SUBMITTED TO THE
APPROPRIATE AGENCIES AND NOT TO THE
FEDERAL BUREAU OF INVESTIGATION.

Age of offender	Percent for the lowest class	Percent for the highest class
1	15.7%	100%
2	16.7%	95% and 100%
3	16.7%	75% -
4	16.7%	1% -
5	16.7%	1% -
6	16.7%	1% -
7	16.7%	1% -

©1994, 1995, 1996, 1997, 1998, 1999, 2000, 2001, 2002, 2003, 2004, 2005, 2006, 2007, 2008, 2009, 2010, 2011, 2012, 2013, 2014, 2015, 2016, 2017, 2018, 2019, 2020, 2021, 2022, 2023, 2024, 2025, 2026, 2027, 2028, 2029, 2030, 2031, 2032, 2033, 2034, 2035, 2036, 2037, 2038, 2039, 2040, 2041, 2042, 2043, 2044, 2045, 2046, 2047, 2048, 2049, 2050, 2051, 2052, 2053, 2054, 2055, 2056, 2057, 2058, 2059, 2060, 2061, 2062, 2063, 2064, 2065, 2066, 2067, 2068, 2069, 2070, 2071, 2072, 2073, 2074, 2075, 2076, 2077, 2078, 2079, 2080, 2081, 2082, 2083, 2084, 2085, 2086, 2087, 2088, 2089, 2090, 2091, 2092, 2093, 2094, 2095, 2096, 2097, 2098, 2099, 2100, 2101, 2102, 2103, 2104, 2105, 2106, 2107, 2108, 2109, 2110, 2111, 2112, 2113, 2114, 2115, 2116, 2117, 2118, 2119, 2120, 2121, 2122, 2123, 2124, 2125, 2126, 2127, 2128, 2129, 2130, 2131, 2132, 2133, 2134, 2135, 2136, 2137, 2138, 2139, 2140, 2141, 2142, 2143, 2144, 2145, 2146, 2147, 2148, 2149, 2150, 2151, 2152, 2153, 2154, 2155, 2156, 2157, 2158, 2159, 2160, 2161, 2162, 2163, 2164, 2165, 2166, 2167, 2168, 2169, 2170, 2171, 2172, 2173, 2174, 2175, 2176, 2177, 2178, 2179, 2180, 2181, 2182, 2183, 2184, 2185, 2186, 2187, 2188, 2189, 2190, 2191, 2192, 2193, 2194, 2195, 2196, 2197, 2198, 2199, 2200, 2201, 2202, 2203, 2204, 2205, 2206, 2207, 2208, 2209, 2210, 2211, 2212, 2213, 2214, 2215, 2216, 2217, 2218, 2219, 2220, 2221, 2222, 2223, 2224, 2225, 2226, 2227, 2228, 2229, 2230, 2231, 2232, 2233, 2234, 2235, 2236, 2237, 2238, 2239, 2240, 2241, 2242, 2243, 2244, 2245, 2246, 2247, 2248, 2249, 2250, 2251, 2252, 2253, 2254, 2255, 2256, 2257, 2258, 2259, 2260, 2261, 2262, 2263, 2264, 2265, 2266, 2267, 2268, 2269, 2270, 2271, 2272, 2273, 2274, 2275, 2276, 2277, 2278, 2279, 2280, 2281, 2282, 2283, 2284, 2285, 2286, 2287, 2288, 2289, 2290, 2291, 2292, 2293, 2294, 2295, 2296, 2297, 2298, 2299, 2300, 2301, 2302, 2303, 2304, 2305, 2306, 2307, 2308, 2309, 2310, 2311, 2312, 2313, 2314, 2315, 2316, 2317, 2318, 2319, 2320, 2321, 2322, 2323, 2324, 2325, 2326, 2327, 2328, 2329, 2330, 2331, 2332, 2333, 2334, 2335, 2336, 2337, 2338, 2339, 2340, 2341, 2342, 2343, 2344, 2345, 2346, 2347, 2348, 2349, 2350, 2351, 2352, 2353, 2354, 2355, 2356, 2357, 2358, 2359, 2360, 2361, 2362, 2363, 2364, 2365, 2366, 2367, 2368, 2369, 2370, 2371, 2372, 2373, 2374, 2375, 2376, 2377, 2378, 2379, 2380, 2381, 2382, 2383, 2384, 2385, 2386, 2387, 2388, 2389, 2390, 2391, 2392, 2393, 2394, 2395, 2396, 2397, 2398, 2399, 2400, 2401, 2402, 2403, 2404, 2405, 2406, 2407, 2408, 2409, 2410, 2411, 2412, 2413, 2414, 2415, 2416, 2417, 2418, 2419, 2420, 2421, 2422, 2423, 2424, 2425, 2426, 2427, 2428, 2429, 2430, 2431, 2432, 2433, 2434, 2435, 2436, 2437, 2438, 2439, 2440, 2441, 2442, 2443, 2444, 2445, 2446, 2447, 2448, 2449, 2450, 2451, 2452, 2453, 2454, 2455, 2456, 2457, 2458, 2459, 2460, 2461, 2462, 2463, 2464, 2465, 2466, 2467, 2468, 2469, 2470, 2471, 2472, 2473, 2474, 2475, 2476, 2477, 2478, 2479, 2480, 2481, 2482, 2483, 2484, 2485, 2486, 2487, 2488, 2489, 2490, 2491, 2492, 2493, 2494, 2495, 2496, 2497, 2498, 2499, 2500, 2501, 2502, 2503, 2504, 2505, 2506, 2507, 2508, 2509, 2510, 2511, 2512, 2513, 2514, 2515, 2516, 2517, 2518, 2519, 2520, 2521, 2522, 2523, 2524, 2525, 2526, 2527, 2528, 2529, 2530, 2531, 2532, 2533, 2534, 2535, 2536, 2537, 2538, 2539, 2540, 2541, 2542, 2543, 2544, 2545, 2546, 2547, 2548, 2549, 2550, 2551, 2552, 2553, 2554, 2555, 2556, 2557, 2558, 2559, 2560, 2561, 2562, 2563, 2564, 2565, 2566, 2567, 2568, 2569, 2570, 2571, 2572, 2573, 2574, 2575, 2576, 2577, 2578, 2579, 2580, 2581, 2582, 2583, 2584, 2585, 2586, 2587, 2588, 2589, 2590, 2591, 2592, 2593, 2594, 2595, 2596, 2597, 2598, 2599, 2600, 2601, 2602, 2603, 2604, 2605, 2606, 2607, 2608, 2609, 2610, 2611, 2612, 2613, 2614, 2615, 2616, 2617, 2618, 2619, 2620, 2621, 2622, 2623, 2624, 2625, 2626, 2627, 2628, 2629, 2630, 2631, 2632, 2633, 2634, 2635, 2636, 2637, 2638, 2639, 2640, 2641, 2642, 2643, 2644, 2645, 2646, 2647, 2648, 2649, 2650, 2651, 2652, 2653, 2654, 2655, 2656, 2657, 2658, 2659, 2660, 2661, 2662, 2663, 2664, 2665, 2666, 2667, 2668, 2669, 2670, 2671, 2672, 2673, 2674, 2675, 2

DEC 27 1951

JOINT HIGHWAY DIST. NO. 13

SIX COMPANIES - CALIFORNIA

2014-2015 2015-2016

SECTION ON TOWNSHIP REPORT

WESTPHEIM PLANNING.

DATA - 07/1

DEC 27 1934

JOINT LIAISON EAST NO. 13

BEAUMONT, B. WERE TOP AND BOTTOM RIMS IN ALIGNMENT, I PROVE IT.

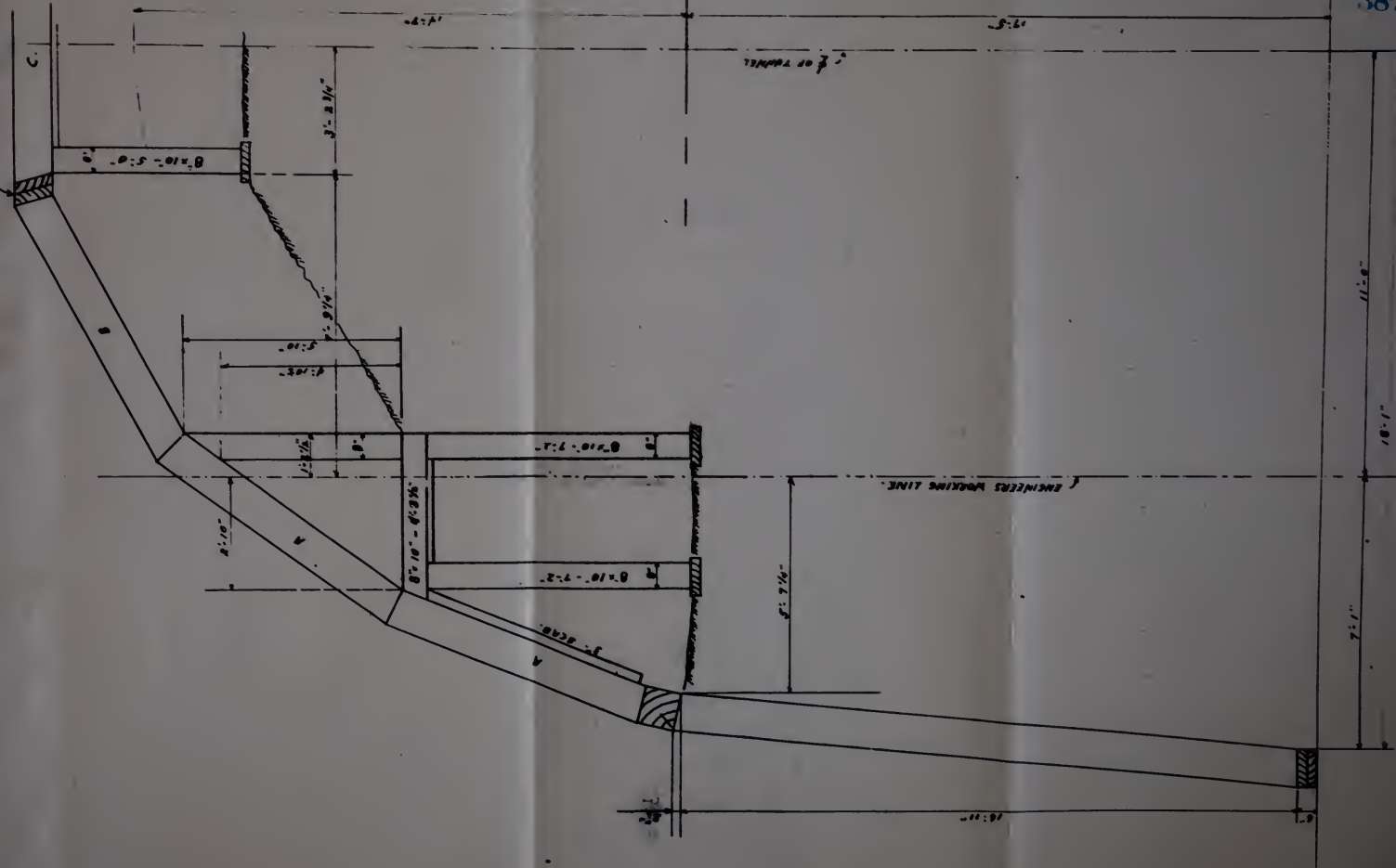
SIX COMPANIES OF CALIFORNIA

10000 - 9450 = 600

Saved as Times. Success.

CONJEN PLAN

TWO - 3 1/2" x 12"



387

SKETCH FOR LARSSEN.
Scale: 1/8" = 1'

ON B. No. 4 JAG.

DEFENDANT'S EXHIBIT II

(Received April 3, 1935 Joint Highway Dist.
No. 13.)

Builders of Low Level Broadway Tunnel

SIX COMPANIES OF CALIFORNIA

Field Office Post Office Box 120

Berkeley, California

April 2nd, 1935

Mr. Wallace B. Boggs, District Engineer,
Joint Highway District No. 13
1448 Webster Street
Oakland, Calif.

Dear Sir:

We are inclosing a print of our drawing No. 19, which shows the arrangement we have adopted for placing concrete in the tunnel lining. We think that this drawing is self-explanatory, but some explanation may be necessary.

When we discussed this matter in your office some time ago, we contemplated the use of 36 foot forms. We have now decided on a length of 27 feet.

While the drawing is schematic, it is intended to fairly represent the method and forms. The forms will be supported by jacks from the form carrier. In order to move the forms, the sides will be swung in and the entire form lowered.

Concrete will be brought from the central mixing plant to a double concrete pump, mounted on a car

as indicated. Moto mixers, operated only when dumping, will be used to transport the concrete. Each side of the concrete pump will be independently operated, so that concreting could be carried on in case of a break-down of one pump.

For the side walls, the concrete will be discharged through two pipes serving both sides of the form. It will be conducted by fixed spouts through openings in the forms, into final position. Short spouts, at the openings, will provide for inspection and working of the concrete if that should be necessary. It will not be necessary to move the pump outfit while pouring the side walls.

It is contemplated to pour the arch ring in the usual manner, by moving back the pipes and car as the filling advances.

Very truly yours,

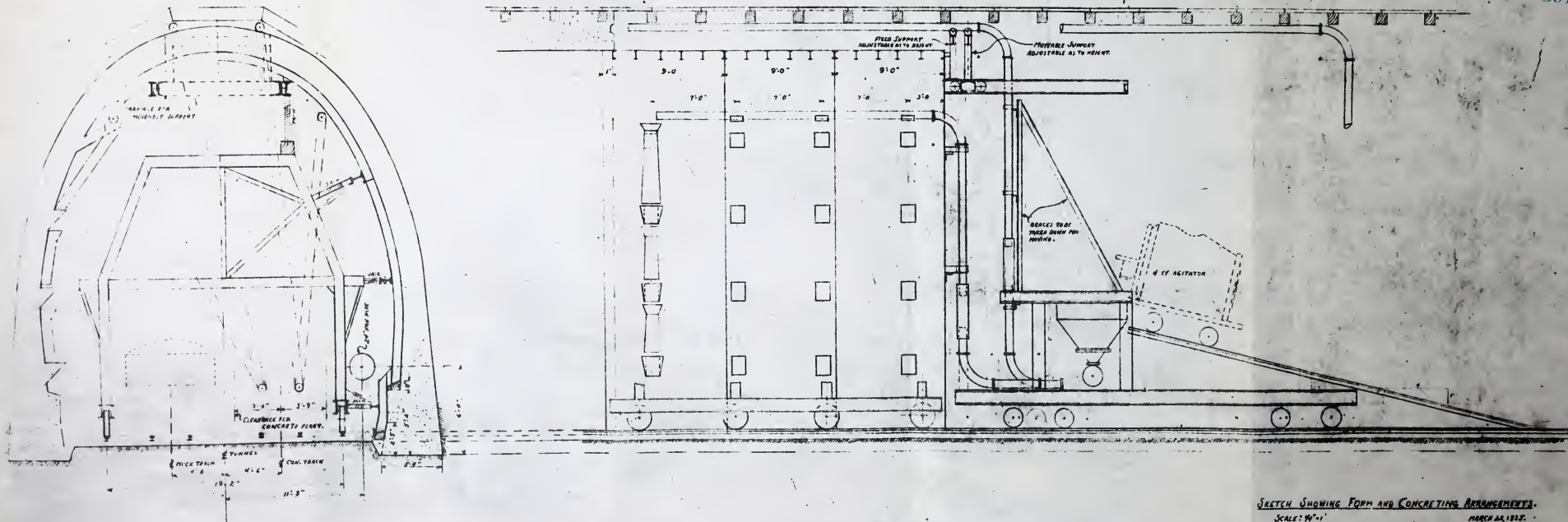
SIX COMPANIES OF
CALIFORNIA

By (Signed) T. M. PRICE,

Project Manager.

TMP:k

[Endorsed]: U. S. Dist. Ct. N. D. Cal. No. 20101-R. Deft's Ex. II. Filed April 26, 1938. Walter B. Maling, Clerk. By J. A. Schaertzer, Deputy Clerk.



SKETCH SHOWING FORM AND CONCRETING ARRANGEMENTS.

SCALE: 1/4"=1'

MARCH 22, 1915.

SIX COMPANIES OF CALIFORNIA.

BROADWAY TUNNEL, OAKLAND.

DEFENDANT'S EXHIBIT BBB

Builders of Low Level Broadway Tunnel

SIX COMPANIES OF CALIFORNIA

Field Office Post Office Box 120

Berkeley, California

Sept. 17, 1935

Received Sept. 18, 1935 (W. B. B.).

Mr. Wallace B. Boggs,
District Engineer,
Joint Highway District No. 13,
1448 Webster St., Oakland

Dear Sir:

Now that we have a complete survey of the condition of the tunnel timbers, we find that in a good many places it will be necessary to trim as much as six inches to obtain the required thickness of our concrete lining. In order to make the job as safe as possible, we propose to Gunitite a reinforced concrete ring as shown on the enclosed sketch, supporting it where practical against rock at intervals, to give the timber the necessary stability so that trimming can be carried out just ahead of the concrete. In most places, this ring can be kept back of the neat concrete lines, but there are places where it will be necessary to let the Gunitite ring encroach into the concrete a maximum of four inches. Inasmuch as the Gunitite rings are a permanent material and will bond well with the concrete lining, it might be well to place some of the permanent steel in these

rings while they are being built. The encroachment into the concrete will be left rough and cleaned.

The reason for the four-inch encroachment is because it is our opinion that anything in the way of a Guniting ring less than ten inches would be of no value.

It is only proposed to use the above plan where the maximum trimming is six inches or less to get the required thickness of concrete.

We propose to try out this method, and if it proves satisfactory to everybody concerned, we will continue its use where practical and necessary, but if we find after a fair trial that it is not giving the results we hoped for, it will be discontinued.

In cases where it is necessary to trim more than six inches, it will be necessary to use some other method, which is being worked out at the present time.

We would be pleased to have your approval of this plan.

Yours very truly,

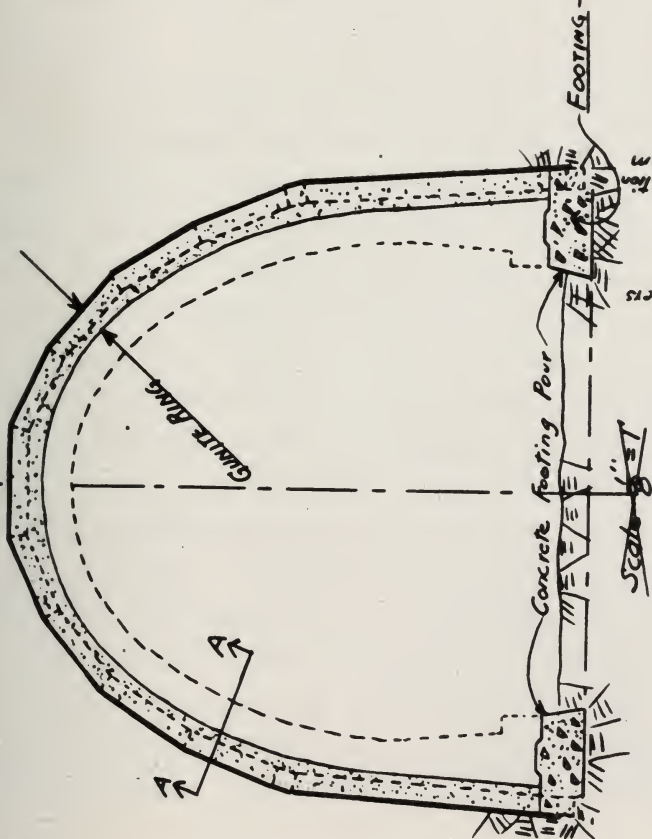
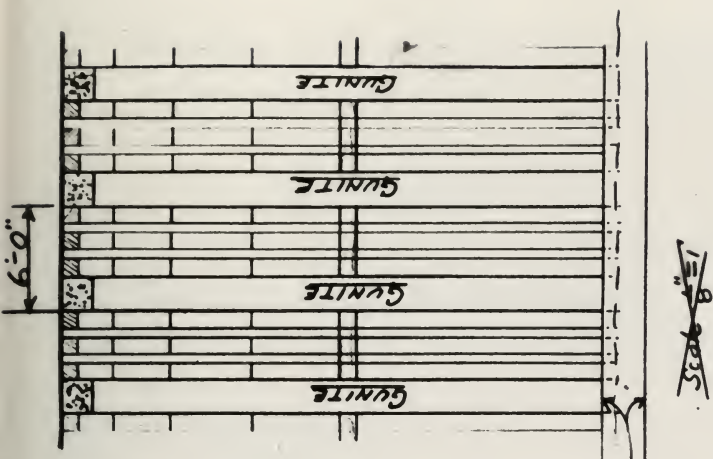
SIX COMPANIES OF
CALIFORNIA

By (Signed) T. M. PRICE,

Project Manager.

[Endorsed]: U. S. Dist. Ct. N. D. Cal. No. 20101-R. Deft's Ex. BBB. Filed April 27, 1938. Walter B. Maling, Clerk. By J. A. Schaertzer, Deputy Clerk.

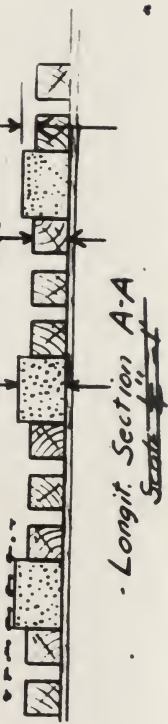
Arch. Sp. 1. 6. 37
BBB
217



Scale 1/4" = 1'

Trimmed Timbers
6" Minimum
Gunita Projection
4" Minimum

10" Min.



Longit. Section A-A

Scale 1/4" = 1'

DEFENDANT'S EXHIBIT KKK

Builders of Low Level Broadway Tunnel
SIX COMPANIES OF CALIFORNIA
155 Sansome Street
San Francisco, Calif.

October 8, 1935

Mr. Wallace B. Boggs, District Engineer,
Joint Highway District No. 13 of the State of
California,
1448 Webster Street,
Oakland, California.

Dear Sir:

You are hereby requested to grant permission for the undersigned Contractor to install the permanent reinforced concrete tunnel lining in all portions of the tunnel bores which have been excavated but were not lined, on September 30, 1935, with the permanent tunnel lining called for in the plans and specifications, to a section with an intrados crown position 10 inches lower than the crown position called for in the plans and specifications and with the position of the interior walls of the sides of the tunnel lining a maximum of 6 inches inside of the position provided for in the plans and specifications, and to all of the dimensions shown on Sheet 187 S of the plans, entitled: "Main Tunnel Special Section Type A Date September 28, 1935 Joint Highway District No. 13 State of California", a copy of which is attached hereto, the Contractor to install proper tran-

sitions in the special sections of the permanent lining to the sections of the permanent lining built in accordance with the original design and to make such alterations in the location of the ceilings, flues, hangers and other details of the completed structure as are determined to be necessary by the District Engineer of the Joint Highway District No. 13 to adjust the same to the special section, all without additional cost to the District for additional labor or material required to change the form and position of the section as requested.

Yours very truly,

SIX COMPANIES OF
CALIFORNIA

(Signed) By S. D. BECHTEL

President

HARTFORD ACCIDENT
AND INDEMNITY
COMPANY, a Connecticut
Corporation,

[Seal] (Signed) By A. C. POSEY,

Attorney-in-fact

FIDELITY AND DEPOSIT
COMPANY OF
MARYLAND, a Maryland
Corporation,

[Seal] (Signed) By GUY LeROY STEVICK,

Atty-in-fact, Agent

Attest:

D. MORTON

THE AETNA CASUALTY
AND SURETY
COMPANY, a Connecticut
Corporation,

[Seal] (Signed) By J. C. SWEARINGEN
Attest:

R. M. SZYMANSKI
INDEMNITY INSURANCE
COMPANY OF NORTH
AMERICA, a Pennsylvania
Corporation,

[Seal] (Signed) By HARRY C. MILLER,
Attorney-in-fact

AMERICAN SURETY
COMPANY OF NEW
YORK, a New York
Corporation,

[Seal] (Signed) By R. D. WELDON,
Resident Vice President,
L. V. PLATT,
Res. Ass't Sec'ty

FIREMAN'S FUND
INDEMNITY COMPANY,
a California Corporation,

[Seal] (Signed) By JAMES J. CRISP,
Atty-in-fact

MARYLAND CASUALTY
COMPANY, a Maryland
Corporation,

[Seal] (Signed) By W. F. KELSO,
Attorney-in-fact,

UNITED STATES
FIDELITY AND
GUARANTY COMPANY,
a Maryland Corporation,

[Seal] (Signed) By EDW. W. COPELAND,
Attorney-in-fact

THE FIDELITY AND
CASUALTY COMPANY
OF NEW YORK, a
New York Corporation,

[Seal] (Signed) By L. F. CALLAHAN,
Attorney

GLENS FALLS
INDEMNITY COMPANY,
a New York Corporation,

[Seal] (Signed) By R. LYNN COLOMB,
Attorney

STANDARD SURETY AND
CASUALTY COMPANY
OF NEW YORK, a
New York Corporation,

[Seal] (Signed) By A. C. POSEY,
Attorney-in-fact

STANDARD ACCIDENT
INSURANCE COMPANY,
a Michigan Corporation,

[Seal] (Signed) By A. A. KAUFMAN,
Attorney-in-fact

PACIFIC INDEMNITY
COMPANY, a California
Corporation,

[Seal] (Signed) By EARL A. DAVIS,

Attorney-in-fact

MASSACHUSETTS BOND-
ING AND INSURANCE
COMPANY, a Massachu-
setts Corporation,

[Seal] (Signed) By J. R. McKINNEY,

Attorney-in-fact

CONTINENTAL
CASUALTY COMPANY,
an Indiana Corporation,

[Seal] (Signed) By B. F. CATOR

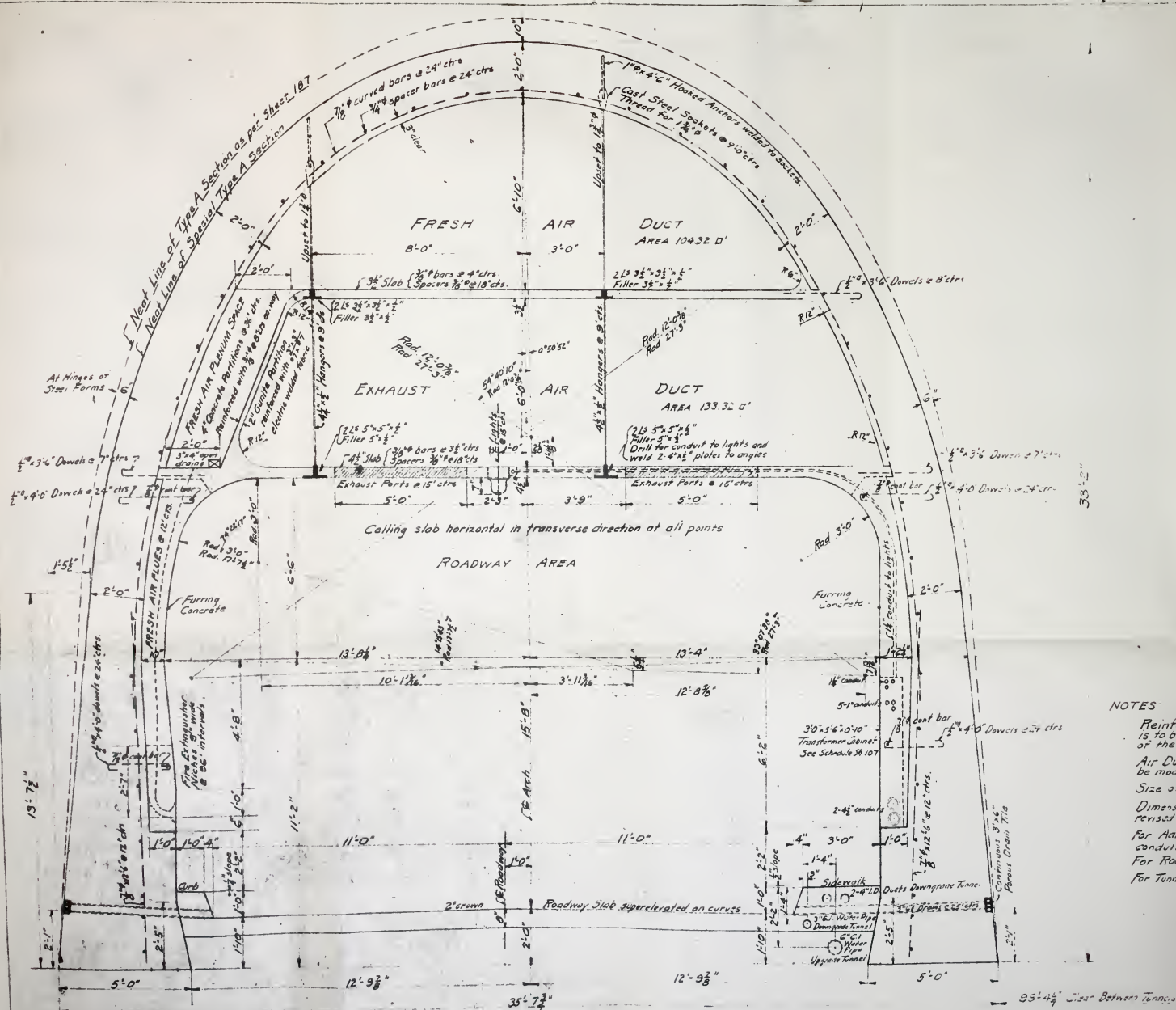
NEW AMSTERDAM
CASUALTY COMPANY,
a New York Corporation,

[Seal] (Signed) By WALTER W. DERR,

Agent and Attorney-in-Fact

Sureties

[Endorsed]: U. S. Dist. Ct. N. D. Cal. No. 20101-R.
Deft's Ex. No. KKK. Filed April 27, 1938. Walter
B. Maling, Clerk. By J. A. Schaertzer, Deputy
Clerk.



NOTES

- Reinforcement shown is a minimum and additional steel is to be added where deemed necessary in the judgment of the District Engineer.
- Air Duct Bulkhead locations as shown on Sheet 138 to be modified as directed by the District Engineer.
- Size of Ceiling hangers adjacent to bulkheads to be 5/8" x 5/8".
- Dimensions of Fresh Air Flues as shown on Sheet 131 to be revised to conform to arch dimensions shown on this sheet.
- For Airt details and location of Transformer cabinets and conduit at airt see Sheet 139.
- For Roadway Slope details see Sheet 132.
- For Tunnel Drawings and Water Pipe details see Sheet 133.

SECTION THRU TUNNEL

SCALE 1/4"=1'-0"

Section shown is normal to roadway grade

APPROVED *H. H. H.*
DISTRICT ENGINEERJOINT HIGHWAY DISTRICT NO. 3
STATE OF CALIFORNIA
DIVISION OF HIGHWAYS
SAN FRANCISCO
DATE SEPTEMBER 1937
SCALE 1/4"=1'-0"



DEFENDANT'S EXHIBIT UUU

Before the Industrial Accident Commission of the
State of California

I hereby certify that the foregoing, consisting of twenty-eight pages, is a true and correct copy of the testimony taken at the hearing before the Industrial Accident Commission on September 24, 1935, at 2 p. m., at the offices of the Commission, State Building, San Francisco, California, said testimony being with reference to the "Broadway Tunnel."

(Signed) FLORENCE H. JONES,

[Seal]

Hearing Reporter.

Dated at San Francisco, California this 6th day
of April, 1938.

Attest:

(Signed) FRANK J. BURKE,

Secretary Industrial Accident Commission
of the State of California.

HEARING

Before the Industrial Accident Commission of
the State of California

September 24, 1935—2 P. M.

State Building, San Francisco

Present:

T. A. Reardon, Chairman

Frank C. MacDonald, Commissioner, I. A. C.

Frank J. Burke, Secretary, I. A. C.

F. L. Lowell, Industrial Accident Commission
L. K. Reinhardt, Industrial Accident Commission
J. I. Ballard, Editor, Western Const. News, S. F.
Jack Norton, Tribune, Oakland
O. W. Peterson, Six Companies of California
Thos. Soule, Chief Engineer, Industrial Ind. Exchange
S. M. Jarrett, Safety Engineer, Ind. Ind. Exchange
J. O. Barlow, Utah Construction Co.
V. G. Hindmarsh, Six Companies
T. M. Price, Six Companies
George D. Whittle, U. S. Bur. Public Roads
B. Modglin, 200 Financial Center Bldg., S. F.
S. D. Bechtel, President, Six Companies
T. L. Phillips, Engineer, Western Pacific R. R.
D. Young, MacDonald & Kahn
Mason D. Pratt, Engr. Sureties
Max Thelen, Atty. for Six Companies
DeLancy Smith, Atty. for Six Companies
A. B. Tinning, Atty. for Highway Dist. No. 13
Mr. Boggs, Engineer, Highway Dist. No. 13

Mr. Reardon: Gentlemen, the reason we called this hearing is with reference to the tunnel known as the "Broadway Tunnel." There has been an accident over there, an unfortunate accident, and our only duty with reference to that tunnel is the safety.

We have nothing to do with how the tunnel is designed—right or wrong—but the safety of the men working there is what we are interested in. We have Mr. Reinhardt here, who is an engineer of this Commission, and he has filed a report with the Secretary, Mr. Burke, which I will ask that Mr. Burke please read.

Mr. Burke: This is an inter-communication from the Department of Safety, dated San Francisco, September 19, 1935, addressed to the attention of Mr. Reardon, Director, Department of Industrial Relations, subject:

“Broadway Tunnel.”

“As per your telegram of September 17th, I made an inspection and survey of the Broadway Tunnel this date and found the following conditions:

“There is approximately 1800 feet of full section tunnel which is timbered and I would estimate that 75 percent of this timbering has to be removed and set back in order to clear the forms on Design A, the original design, before concreting can be done.

“The investigation of the cave-in on August 28th, in which three men lost their lives was the result of moving back one of these timber sets. As far as my investigation could determine this work was being done in a careful manner according to standard practices and the cave-in therefore was not the fault of the mechanical operation, but due to a peculiar formation in

the earth above the tunnel section, which possibly permitted a crust to form with a void back of the crust, allowing a major slide to occur once it started, thereby breaking two or more sets of timbering.

“My opinion is that in disturbing the present timbers we are inviting a similar cave-in in one or more places of the 1800 feet of timbered section.

“On September 2nd, Mr. Fry advised the Six Companies that he had been in consultation with the consulting engineers, Messrs. Tibbitts and Phillips, and agreed with their recommendation that the timbers should not be disturbed, that the forms should be lowered to clear the encroachment on the tunnel section by the shifted timbering. Mr. Fry’s letter recommended that this be done.

“I understand consulting engineers Lippincott and Van Norman also recommended the lowering of the form and not disturbing the present timbered sections.

“Up to Saturday, September the 14th, it was tentatively agreed by the Six Companies, the Joint Highway District and P. W. A. that the forms would be lowered 8” and the timbers not disturbed, but this agreement was cancelled due to some legal objections on the part of the Joint Highway District and the scheme was called off. The Joint Highway District then notified the Six Companies that they were to

abide with paragraph E, Section 32, page 60, which states in part 'timbers found to project within the concrete lines shall be removed and reset before concreting.'

"At the time of my inspection this work was getting under way. As I considered it a serious hazard to disturb the timbers, I urgently recommend that the Commission issue a Special Order requiring both the Joint Highway District and the Six Companies not to remove and reset the timbering but to either lower the forms or submit to this department some other plan for approval whereby the timbering will not be disturbed."

Mr. MacDonald: Gentlemen, I have just started a paper along the line, which I ask that you sign, so that we may know who is present today.

May I suggest that the law of the State of California, that is, the Workmen's Compensation, Insurance and Safety Laws, prescribe in part, Section 34:

"Sec. 34. Every employer shall furnish employment which shall be safe for employees therein and shall furnish a place of employment which shall be safe for employees therein, and shall furnish and use such safety devices and safeguards, and shall adopt and use such practices, means, methods, operations and processes as are reasonably adequate to render such employment and place of employment safe, and

shall do every other thing reasonably necessary to protect the life and safety of such employees."

Section 35 continues:

"No employer shall require, permit or suffer any employee to go or be in any employment or place of employment which is not safe, and no such employer shall fail to furnish, provide and use safety devices and safeguards or fail to adopt and use methods and processes reasonably adequate to render such employment and place of employment safe, and no such employer shall fail or neglect to do every other thing reasonably necessary to protect the life and safety of such employees, and no such employer shall occupy or maintain any place of employment that is not safe."

The Industrial Accident Commissioners recognize the fact that largely due to the formation in which the tunnel is being driven, we have a very hazardous undertaking. The timber is now holding the ground, but there has been a shifting of the ground, and, basing our opinion and judgment upon the reports of our investigators, we are very fearful that moving any of the timbers, prior to putting reinforced concrete in, may cause, and, we fear, will cause the loss of additional lives. Now, it is in our province or duty to tell contractors just how they shall do the work. The laws impose the responsibility of safe employment upon the contractor. We have heard conflicting reports and stories concerning methods of operation. We are satisfied that it is the earnest

desire of all parties concerned to have the work done under safe conditions. We have issued an order which has interfered with the continued progress of the work directing all timbering in both the north and south tunnels shall not be removed and reset before concreting; and (2) The concrete forms may be lowered sufficiently to clear encroachments in the tunnel section, or some other plan, whereby the timbering will not be disturbed, may be submitted to the Commission for approval.

It is our desire now to ascertain what determination, if any has been made as to further procedure of the work, that is going to be safe for the lives and limbs of the workers therein.

Mr. A. B. Tinning: I am the attorney for the Highway District. May I say that you have expressed the opinion of the Board of Directors respecting the desire of having all possible precaution respecting risk, taken. However, we are very anxious that in this order a valid order be made by the Commission, in which it has jurisdiction, and we communicated with you on September 20th, asking that a formal hearing be held, because, as we understand our provisions of the Workmen's Compensation Act, it is necessary before a special safety order is made, that a hearing be held, and I assume that it will be satisfactory to use as evidence at this hearing, Mr. Reinhardt's report, as a basis for the finding that operation as conducted, in the opinion of the Commission, is not safe, and if that is done and is stipulated to by the attorneys for the contractor, we are ready to offer the recommenda-

tion as a plan for our side of the matter.

Mr. Thelen: I am one of the attorneys for the Six Companies, and will be very glad to stipulate according to Mr. Tinning's suggestion.

Mr. Tinning: Mr. Boggs, I think you have prepared a tentative plan?

Mr. Boggs: I have—I am District Engineer.

Mr. Tinning: I will say, Gentlemen of the Commission, that this plan is a development of various discussions at previous times, and the result of close work done since this order was issued on September 19th. It is entitled: "Preliminary—Joint Highway District No. 13, State of California, Alameda County, Contra Costa County—Modification, Type A Section," and I would like to have Mr. Boggs, for the purpose of the record, read a statement which has been prepared, respecting this plan and the manner in which it is offered, as a proposal.

Mr. Boggs (reading):

"The recommendation for a modification of the plan for the Broadway Low Level Tunnel which follows, is made solely because of the delay of the Contractor in placing the permanent reinforced concrete tunnel lining in the portions of the tunnel bores which have been excavated——

Mr. Tinning (interrupting): Excuse me. I should state in making this statement, we do not want to be put in the position that our silence may not be construed as an omission. We want to just

state our position in connection with offering this plan—but we waive no rights.

Mr. Reardon: Mr. Tinning, we always carry our meetings on as an open forum, so that any one who has ideas on safety—we will allow them to speak on that subject.

Mr. Tinning: Thank you.

Mr. Boggs (reading):

“The recommendation for a modification of the plan for the Broadway Low Level Tunnel which follows, is made solely because of the delay of the contractor in placing the permanent reinforced concrete tunnel lining in the portions of the tunnel bores which have been excavated, but not lined with the permanent lining called for in the plans and specifications.”

Mr. Thelen (Interrupting): Reference is made to the delay of the contractor. We do not concede that there has been any unreasonable delay of the contractor. It seems to me that the only thing the Commission is interested in, is the safety and what shall be done to make safe conditions.

Mr. Reardon: This is an open forum. You people realize I was President of the Board of Public Works, and I carried on the work of public works in the same manner, as I am now, with the assistance of Commissioner MacDonald, and I will allow Mr. Tinning to submit his evidence.

Mr. Tinning: I am not asking that anything be conceded. We only want our definite statement as to our position, as an excess of precaution. We

waive nothing in connection with this plan. We are simply trying to state our position, not trying to put it to the side.

Mr. Thelen: I may suggest that if references of that kind are made, we may have to introduce evidence to show that the references are not justified. We do not admit there has been any delay.

Mr. MacDonald: I hardly think we will rule on the statement, but we will recognize and are compelled to recognize Mr. Thelen's right to file with this Commission any supplemental statement he may desire, setting forth the position of his clients.

Mr. Thelen: I think that is very very fair.

Mr. Boggs (Continuing reading):

"These open sections of the tunnel bores are supported by temporary timber supports which have been generally intruded into the space necessary for placing the permanent tunnel lining in accordance with the Plans and Specifications. If the permanent lining had been installed promptly after excavation the present condition of the timbers would not exist.

"To eliminate so far as practical the demonstrated hazard to the lives and safety of workmen arising from resetting the temporary timber supports, and, at the same time to provide a structure equal in strength and capacity to the original design, a modified design is recommended. In making this recommendation, or in its later authorization, it is not intended in any respect to admit the modification is made

because of any demand, claim, or contention of the Contractor which has heretofore been communicated to the Joint Highway District No. 13 of the State of California, or to any of its officers or employees, and the District if the modification is authorized, waives none of its rights under the contract dated June 4th, 1934, with the Six Companies of California.

“The District Engineer recommends as a design for the permanent reinforced concrete tunnel lining for those portions of both bores of the Broadway Lower Level Tunnel, which are now excavated and supported by temporary support, and in which the permanent tunnel lining has not yet been placed, a section with an intrados crown position 10 inches lower than the present designed crown position, the position of the sides of the tunnel lining 6 inches inside of the present designed position, and to all of the dimensions shown on the preliminary plat of Joint Highway District No. 13 of the State of California, entitled, ‘Modification Type A Section—Sept. 21, 1935.’

“This recommendation is that said modification in dimensions of the permanent reinforced concrete tunnel lining be authorized by the District, under all of the terms of the Contract, plans and specifications, for the sections of tunnels now open and unlined, the Contractor to be paid therefor at the price per lineal foot as provided in the contract of June 4, 1934 (extra

concrete necessary to fill the space left by the contraction of the dimensions of the tunnel lining, to be furnished by the Contractor at its own cost), all reinforcing steel required in the construction of the modified section to be paid for by the District at the unit price provided in the contract of June 4, 1934; the proposed modification of the tunnel lining will not apply to the portions of the tunnel bores which are already lined, nor to any portions which are not now fully excavated and supported by temporary timbering supports; and the Contractor will be required to excavate, and to install the permanent reinforced concrete tunnel lining in all parts of the bores not yet fully excavated, to the dimensions specified in the original plans and specifications, and to install proper transitions from the modified sections to the sections of lining built to the original design, and to make such alteration in location of the ceilings, flues, hangers and other details of the complete structure are determined necessary by the District Engineer to adjust such portions to the modified sections, all without any extra charge to the District, and at the prices provided in the contract of June 4, 1934.

“Before the above recommendation is finally approved by the Board of Directors of the Joint Highway District No. 13, it is subject to the approval by the Director of the Department of Public Works of the State of California, and

the proper officials of the Bureau of Public Roads, and/or the P. W. A. of the United States, after which the Board of Directors of the Joint Highway No. 13, will act upon the recommendation for the modification."

Mr. Reardon: I realize that all of that has no bearing on the case—only the recommendations for safety. You have data in there that affects the construction of the tunnel, and we are not interested in the price of the tunnel, or the change of the plans—our only interest is for safety. If you have such recommendation for the safety of the men working in the tunnel, the Chairman will entertain that. You are protecting yourselves, protecting a price or an agreement which will be made between you. You can take the parts out which are for the recommendation of safety, and the Chairman will entertain any part of that.

Mr. Tinning: We shall be very glad to have the Commission take any part it may desire, but we will not waive any rights. We are not submitting it as evidence. We are submitting it as an offer or a plan which is for the purpose of affording safety, and those provisions are not intended to change the force of the contract, but they are placed there so we will not change our position. That is the only purpose. We do not ask the Commission to take any action on that—but we do not wish to waive our rights. We have this plan which we are ready to offer, and it is offered with the direct understanding that we do

not expect the contractor to change his position and we will not change ours.

Mr. MacDonald: This Commission issued an order practically prohibiting the moving of timbering until such time as the concrete is in place. We also went beyond our real rights, as far as the contractor is concerned by stipulating that concrete forms may be lowered sufficiently to clear encroachments in the tunnel section, or some other plan whereby the timbering will not be disturbed, may be submitted to the Commission for approval. We can only pass on that, as Commissioner Reardon has pointed out, with one thought in mind—safety.

The drawing you submit and the statement you have just read is submitted for the purpose of giving assurance to the Commission that so far as the District is concerned, you are willing to accept a modification of the original plan to the one herein indicated, but you are serving public notice at the same time that you relinquish none of the legal matters in the District made between the District and the contractors, and, in the latter matter, we have no authority to pass any opinion or judgment. It would be void—it would be of no force and effect, but we have the right to insist upon safety. We appreciate the spirit in which the District is acting in the matter for the protection of human life. I can see no reason, Mr. Chairman, why the entire statement cannot be incorporated in the record, subject to the conditions you have stated, and assurance of this given to Mr. Thelen, that the legal

rights of his clients can be safeguarded to any extent that he feels they should be safeguarded, by a supplemental statement that can be filed with the Commission, and made of record.

Mr. Thelen: That is agreeable; but unless we are driven to it we will not file a supplemental statement. We feel that there is much in that statement that is not material here. We think there is a good deal that is immaterial, and the Commission has not jurisdiction. The arrangements between the District and contractors we are not interested in—we are only interested in the safety features. In that statement reference is made to the situation shown on the blue print—that goes directly to the safety. As I understand it, it is intended to lower the crown some 10 inches, to be filled in with concrete, and over here (referring to blueprint) on each side the concrete is to be poured some six inches or so beyond the original plans and specifications, for the purpose of strengthening the structure, and making it unnecessary to remove timbers, and that is the thing for which the Commission is driving.

Mr. Tinning: There is no change made for the purpose of strengthening the structure. The purpose is to prevent the necessity of having to reset or trim timbers, and we do not for one moment concede that the structure is any respect strengthened by that proposal.

Mr. Reardon: Mr. Reinhardt, you have heard the reading of that communication?

Mr. Reinhardt: Yes.

Mr. Thelen: We are trying to avoid a controversy, and the necessity of filing a supplemental statement—if it may be understood that we do not agree with some of those statements—I think we will avoid the filing of the supplemental statement.

Mr. Tinning: That is stipulated, as far as the Highway District is concerned.

Mr. Boggs: That stipulation will be to what effect?

Mr. Thelen: To the effect that we do not agree with those portions of the statement which has been read which do not relate directly to the safety matter.

Mr. Reardon: The Chairman rules on that point—there is lots in that statement that does not relate to safety.

Mr. MacDonald: In order that we may understand Mr. Thelen—your clients, the Six Companies, are agreeable to proceeding with the work in conformity with the modified design herein indicated in conducting the work—that is, placing the concrete in before they attempt to remove timber, in order to insure safety?

Mr. Thelen: I would like to have our engineer, Mr. Peterson, answer that question directly—if he will.

Mr. O. W. Peterson (Engineer for the Six Companies): This plan will eliminate almost in its entirety, the necessity of moving timbers. It will be necessary still to move a very limited number of timbers, and it is planned in doing that to build

up the very substantial framework called a square-set, in the place of those timbers—and I think that work can be done under the supervision of one of your safety engineers. The safety of the District requires a certain minimum thickness of concrete to get the proper theoretical section of the tunnel, and it is not possible to entirely avoid the necessity of some of that work. I would say that that special amount of timber work should and can be done under the supervision of the engineer of the State Commission.

Mr. Thelen: Based on the statement of Mr. Peterson, that answers my question directly—that we are willing to proceed under an order to be made by this Commission, and under order of the District.

Mr. Tinning: I think, Gentlemen, that if we consider the legal situation, believe that it is necessary to have another order, because I do not think the order of September 19th—there might be some question about it, unless there had been a hearing preceding this.

Mr. Thelen: The Company accepted the order in the spirit in which it was made, and we are continuing to obey it until it is changed, and we are not raising the point no notice was given.

Mr. MacDonald: Mr. Boggs, do you feel that the order as of the date of September 19th is sufficient, or was it simply the legality of the order that you had in mind? Did you feel that the order should be amplified?

Mr. Boggs: The order as it exists here would not fully cover the conditions as set forth, and in that it states that all timbering shall not be removed, and follows in paragraph 2 "whereby the timbering will not be disturbed,"—as Mr. Peterson stated, there will be some sections where it will be necessary, under this modified plan, to alter the timbering.

Mr. MacDonald: If the order were modified to read: "All timbering in both the north and south tunnels shall not be removed and reset before concreting, except in such cases where square-sets are substituted for present timbering, and that the timbering thereafter be removed."

Mr. Boggs: I believe that would clarify it.

Mr. Tinning: As I understand the matter at the present time, there will be a certain amount of timber which will have to be trimmed or reset, but it would not be so removed—it would be only the square-sets that would be removed. The vertical segment and arch would stand.

Mr. Peterson: I think the word "reset" is what the discussion really pertains to.

Mr. Reardon: Could the specification read that where out of alignment they should be taken down and reset—that is removing. Now, isn't it a fact that in some of the timbers, there are four inches on each side out of alignment in that tunnel? Now, if that is carried out, we should have to take them down and set them up again, is that not right?

Mr. Peterson: Substantially so, and we would have some other construction to hold it while that is being done.

Mr. Thelen: May I make a suggestion which is directed to the same end you have in mind—so that it will read: “Timbering in both the north and south tunnels shall not be removed and reset before concreting, except in such special instances and under such conditions as the representative of the Industrial Accident Commission on the ground may authorize.” That would give you absolute control of the situation.

Mr. Tinning: That would be satisfactory, providing it be understood that there be no intrusion under that section. We expect to have that modified plan there to follow—without intrusion of timber.

Mr. MacDonald: I think it leaves it exclusively in your authority. It is simply with regard to moving the timber.

Mr. Tinning: I thought the wording was such that it might be thought that we would be eliminating consideration of this modified section. It gives you ten inches right there. It only carries where your timbers have intruded more than that, and you eliminate a very large proportion on movement.

Mr. Reardon: That is the business of Mr. Reinhardt and Mr. Lowell of this Commission, and nothing is taken up without their recommendation, or passed upon by Mr. Reinhardt, who is our engineer. Your specifications read just what I have repeated, and Mr. Reinhardt said if you trim, it takes out the tensile strength.

Mr. Tinning: I hope that the order can embody some reference to this section, so that there may be no misunderstanding.

Mr. MacDonald: My thought was that the one clause, amplified as suggested in the language of Mr. Thelen, would cover the entire situation, and that the Commission would rescind the second one, which is not an order, and that will leave it one order dealing solely with the question of timbering, as the order of the Commission, and will recognize, perfectly agreeable I am sure, to the company, the right of the District to reset these, if the contractor accepts this modification of size, and that will be strictly a matter between you and the contractors.

Mr. Tinning: That is satisfactory, providing the order itself is clear with respect to some plan. I did not want it to say that all timber shall not be reset by concreting—it would have to be all timbering outside of this section may be moved under the direction of the Commission, or in a manner satisfactory to the Commission's engineers—something of that kind.

Mr. MacDonald: Can't we add to the clause—it is what you suggested, Mr. Thelen—say, for instance, so that the work may be constructed in accordance with the agreed modified construction plans contained in "Preliminary Joint Highway District No. 13, State of California, Alameda County, Contra Costa County, Modification Type A section," dated September 21, 1935. That will identify it. Is that perfectly agreeable?

Mr. Reardon: We have heard from the contractor's engineer and the District's engineer, but we have not yet heard from our own engineer, and,

as I said before, our guiding spirit is the engineer, and before we submit this, I would like to hear from our Mr. Reinhardt. You people have seen this blueprint—have you seen it, Mr. Reinhardt?

Mr. Reinhardt: Yes.

Mr. MacDonald: Mr. Reinhardt, do you feel that the modified construction will be a safe construction—for the purpose of the stipulations we are setting forth here today, for the completion of the tunnel work?

Mr. Reinhardt: Well, it is an improvement of about forty percent over the old method. We will never get one hundred percent, because the encroachments are too large in some places as much as 12 inches. I do not think it would be practical or possible to design a form that will clear the encroachments, but this will clear conditions anyway fifty percent, and with supervision over the removing the timbers, in which we cannot use this form, I do not see but what it can be done safely. Mention was made of square-setting—of course, the whole tunnel can be square-setted, but time is the essence of the hazard of this tunnel, and to square-set the tunnel will probably take four or five months, and in the four or five months, I would say the tunnel would probably be the same as it is today—so we are speeding the work, and I would estimate that in five weeks we would probably have the tunnel lined, and in the few cases where we have to take the timbers out, it can be safely done under the square-setting, and the proposed supervision. There is

nothing more that I can add. This is a mighty fine scheme, and think that it should be done. In my estimation I think it is the maximum that can be done and still keep our original tunnel.

Mr. MacDonald: In order that I may be clear—it is the intent to only use square-sets where timbers are to be removed?

Mr. Boggs: That is up to the contractor.

Mr. Reinhardt: That is up to the Commission it might have to remove these timbers.

Mr. MacDonald: But there is no intention for the substitution of the general construction with square-sets—it is only to use square-sets where you have to remove the timber in order to put in the proper concrete form.

Mr. Tinning: The District does not control the matter of construction; you will have to ask the contractor.

Mr. MacDonald: It is my understanding that square-sets are only to be used in such cases where you have to remove present timber.

Mr. Peterson: That is correct. We are using a rather popular term when we call them square-sets—it is square-setting—I think that might be a little nearer the proper statement, or I would say other equipment in construction, acceptable to the safety engineers—I think the safety engineers should govern, even in the use of the square-setting method.

Mr. Thelen: That is why I made the suggestion leaving the authority in all special cases in your own hands.

Mr. Reardon: It leaves the responsibility right up to you, then, Mr. Reinhardt.

Mr. Reinhardt: There is no objection to that.

Mr. MacDonald: Mr. Thelen, you wouldn't take unfair advantage?

Mr. Thelen: Absolutely not—I think you are absolutely competent.

Mr. Reinhardt: There is no objection to assuming responsibility, and the only difficulty is the time allowed for inspection. If I am to be there every day, I will be glad to assume responsibility for what I know, with the capable assistance of Mr. Jarrett, who is there, but, of course, I could not be responsible when I am not there. If I am on the bridge, I could not be over on the tunnel, and that is the drawback to the arrangement it seems to me.

Mr. Tinning: Would there be any chance of assigning this gentleman for the four or five weeks that it would take to complete this emergency work, and keeping him there?

Mr. Reardon: No. This Department is unfortunately curtailed not only for the tunnel work, but every department. Mr. Reinhardt, you say this plan would increase the efficiency about 40 percent, but never 100 percent, and then further on in your testimony you said 50 percent better than at the present time. How far would you go on record here that this plan submitted, these blueprints submitted, are as near as possible of making that tunnel secure?

Mr. Reinhardt: Yes, I think I have made that statement. In other words, the plan is the maximum that we can obtain in point of design and still maintain our original tunnel.

Mr. Reardon: As a safety measure, you don't question the designing of that tunnel do you?

Mr. Reinhardt: No, not at all. What I was thinking of when I mentioned the original tunnel was the size and amount of clearance, and so forth.

Mr. Reardon: Are you familiar with these blueprints?

Mr. Reinhardt: Yes.

Mr. Reardon: And you, Mr. Tinning, are you familiar with them?

Mr. Tinning: As much as I am with any blueprints—I can't read them.

Mr. Reardon: Mr. Boggs, you are familiar with the blueprints, and that they are acceptable to you people?

Mr. Boggs: Yes—this is acceptable to us.

Mr. Thelen: We have stated on the strength of Mr. Peterson's statement that is agreeable to us.

Mr. Peterson: We understand this to be a preliminary drawing. We have steel forms already built, and we will assume that the steel forms which we have can be modified in a reasonable way to build this structure, and I think we understand each other on that point, and the contractor is willing to make these modifications.

Mr. Reardon: Well, the three people interested are satisfied. Now, Mr. Lowell, we have not heard from you—you know that tunnel—what is your opinion?

Mr. Lowell: I am not on the tunnel now, but my recommendation to the Commission is that this be the plan—that is, lower the forms so that they could put in the concrete of the proper thickness, without removing the timbers. I made three recommendations, and the first and second were not acceptable, could not be agreed upon, and then the third one, which was the least to be desired.

Mr. Reardon: Read the report, Mr. Burke.

Mr. Burke (reading):

“1. The writer recommends that the Joint Highway District engineers and the engineers for the Six Companies of California agree upon a plan whereby the concreting of the remaining unconcreted portion of the tunnels be done by lowering the forms in the arched section sufficiently so that it will not be necessary to remove and reset new timbers or cut back the present timbers. In that portion of the tunnel where it is necessary to support the timbers, wooden forms shall be constructed around the timber supports and after the forms have been removed, the supports shall be removed and the holes filled with concrete. Other portions of the tunnel where timbers are not supported, steel forms for concreting might be used.

“2. If No. 1 recommendation is not agreed upon, the writer recommends that structural steel shapes be used for tunnel sets and these sets are to be placed between the present wooden sets and allowed to extend 4 inches beyond the neat line of the concrete structure if necessary. This is allowed under Section 32, paragraph 5, under the heading of ‘overbreak.’ The wooden timbers may then be trimmed back to the neat line and the pouring of concrete proceed as in No. 1.

“3. If numbers 1 and 2 are not acceptable, then the writer recommends supports of all timber sets in heavy ground by square sets and timbers cut back a reasonable distance and others replaced where they have encroached too far. The concreting shall be done with built-in wooden forms and the timber supports removed after the concrete has set and the holes filled with concrete. This suggestion is less desirable than No. 1 or No. 2 but in the opinion of the writer can be done successfully and safely.

“4. It is recommended that in future the arch timbers shall consist of 8 segments instead of 7. In other words, instead of there being a flat top segment, there shall be two segments. The cost of this change, including the added concrete cost, in the judgment of the writer, should be adjusted as is provided under the heading of ‘adjustments’ in Section 6

of the General Provisions in the Specifications, page 5, paragraph (g) which reads as follows:

“Alterations: ‘In case of reduction or increase in quantities of work, by reason of alterations or any cause whatsoever, the Contractor shall accept payment in full at the contract unit prices for the actual quantities of work done and no allowance will be made for anticipated profit due to such reduction or increase.’

“5. It is suggested that in future, the open portion of the fully excavated tunnel be concreted as near to the face of the excavated core as can be done safely without injury to the concrete from blasting and this concreting continue simultaneously with the driving of the headings.

(Signed) FRED L. LOWELL.”

Mr. Reardon: An objection, Mr. Boggs?

Mr. Boggs: No. I think Mr. Lowell's recommendations, in general, are possible to follow and probably will meet the conditions for safety and accelerate the work.

Mr. Reardon: Mr. Peterson, you heard that?

Mr. Peterson: I think Mr. Lowell's statement covers quite a number of details, some of which we would make use of in the actual work of building forms, etc., and this is what we refer to in the general statement of Mr. Thelen's outline. I think Mr. Thelen's statement, with the addition that was added, covers the thing in a very broad manner.

Mr. Reardon: Mr. Reinhardt, you are familiar with that?

Mr. Reinhardt: That is all right. I think it is along the same lines we are working.

Mr. Reardon: Well, there will be no disagreement when I get through. You fellows will all agree.

Mr. MacDonald: May I ask this question. It is my understanding that there is urgent need of placing the concrete just as rapidly as possible. Am I correct in understanding that it is the intention of the contractors to proceed forthwith with the tunnel lining with reinforced concrete, prior to doing any further excavation work in the two headings?

Mr. Thelen: Yes, that is correct.

Mr. MacDonald: I wish the record to show that.

Mr. Thelen: And furthermore, if I may suggest at this time—I would like to ask Mr. Tinning as to whether it is agreeable to the District if the Commission makes an order along the lines here agreed upon, that we should go ahead and do the work without waiting for the formal order?

Mr. Tinning: It is entirely agreeable with us, I can say for the Board of Directors and Mr. Boggs, that we do have this factor we should consider. I think from our discussion with the State, it will take about 48 hours to get that from the State, but we don't know how long it will take to get the special approval from the Bureau of Public Roads, because it has to come from Washington. We

started the movement as soon as we received this order, we started the machinery of getting it moving rapidly, and we understand it will be given us by wire from Washington, but there may be some delay in that, but we have everything ready, and we will move as rapidly as possible, but it is possible we may have some suggestion from some one in Washington, but as far as the District is concerned, within its power, we are willing to go ahead on that basis.

Mr. Thelen: May I say that I realize that, and that was the reason why I asked the question. I wanted to know if we couldn't go ahead, giving the District the time necessary.

Mr. Tinning: I understand you have 100 feet of the tunnel section where you can go to work immediately without having to reset the timber.

Mr. Peterson: That is only with one set of forms. We are anxious to get all four sets going. We can then work about five times as fast.

Mr. Tinning: In view of our past experience I am rather hesitant to say "sure," because I know there may be some holdup in Washington, but everything seems favorable to proceed immediately.

Mr. Thelen: Then may I say to the members of the Commission, if the Commission will get the order that is agreeable, we will go ahead right away, on the assumption that we will get an order from the District, and will not wait for the technicality of this consent from Washington.

Mr. Tinning: I am speaking for the District, but with the reservation that we do have to finally get this order from the P.W.A., or the Bureau of Public Roads, whichever one has jurisdiction in this matter, to make an order authorizing us to make this change—we cannot do it until we have that authority, and we started Friday trying to get that through.

Mr. Reardon: Mr. Peterson, you made some statement that the position of the work could go ahead without referring to the original design of the tunnel?

Mr. Peterson: There is about 200 feet of the tunnel which can be lined. We are anxious, however, the contractor is anxious to work at about four other places, so that we may proceed five times as fast as it is now proceeding, because, as Mr. Reinhardt points out, we have not only the matter of handling timber, but we have the problem of the weather, which will affect the situation materially, and will add to hazards, so time is a very important factor.

Mr. Reardon: Mr. Reinhardt, is that your opinion also?

Mr. Reinhardt: Yes, sir.

Mr. Reardon: That is about all we can do—to proceed with this job under this blueprint.

Mr. MacDonald: May I ask a question of the engineer of the Six Companies? In the recommendation of Mr. Lowell here, he states: "It is recommended that in future the arch timbers shall

consist of 8 segments instead of 7. In other words, instead of there being a flat top segment, there shall be two segments." Mr. Lowell makes that recommendation, because he feels it is practically a flat arch on the top two segments, and he is fearful you may have another cave-in. Is it your intention to change from a 7 segment to an 8 segment arch there?

Mr. Peterson: I would say, with regard to that, that if it is necessary to use a heavier member on the top, the contractor will do that. We will do anything that is necessary to make that timbering safe.

Mr. MacDonald: Yes, the heavier timber abutting on the lighter frame below, safeguarded. It is not the question alone of the size, but it is the thrust of the ground coming down on that.

Mr. Peterson: I don't think I am prepared to speak on that point. I would rather leave the situation in the position that the contractor will be glad to go over this matter with the Engineer of the Commission, and give it thought, and not give an answer off-hand. We can assure the Commission, however, that we will follow construction which is safe and sufficient for the condition, so far as the size and shape of the timber is concerned. We would rather give more careful consideration to the number of timbers or changes.

Mr. Reardon: Does any one want to say anything further before we leave this room?

Mr. MacDonald: Mr. Muire, you have built a wonderful tunnel that is standing up.

Mr. Thelen: May we thank the Commission for the consideration you have given us.

Mr. MacDonald: Gentlemen, we thank each and every one of you who have come here and assisted, and we appreciate the fine spirit that has been shown here, and we hope with your cooperation, that we will finish the tunnel without any further catastrophe or loss of life.

Mr. Bechtel: We want to do whatever we can in the safest way possible, and will cooperate with you and with the District, and we shall continue to do so.

Meeting adjourned.

[Endorsed]: U. S. Dist. Ct. N. D. Cal. No. 20101-R. Deft's. Ex. No. U U U. Filed April 28, 1938. Walter B. Maling, Clerk. By J. A. Schaertzer, Deputy Clerk.

DEFENDANT'S EXHIBIT XXX

Filed With the Board of Directors of Joint Highway District No. 13 of the State of California at Meeting Held July 10, 1934.

HARRY M. STOW, Secretary
By L. V. EATON, Assistant Secretary

**JOINT HIGHWAY DISTRICT NO. 13
OF THE STATE OF CALIFORNIA**
1448 Webster Street
Oakland, Calif.

Estimate No. 1
Contractor—Six Companies of California, Inc.
Street—155 Sansome Street
City—San Francisco, Calif.

Estimate of Work

From June 4th, 1934 to June 30th, 1934

No.	Items	Total Quantities		Estimate This Month	Total Quantities		Contract Prices	Amounts at Contract Prices
		by Last Estimate	Estimated To Date		Estimated To Date	Units		
1	Grading	.....	23,800	.....	23,800	Cu. Yds. \$	0.33	7,854.00
2	Overhaul	.....	20,000	.....	20,000	Cu. Yds.	0.005	100.00
3	Structural Excavation—Class "A,"	.....	7,300	.....	7,300	Cu. Yds.	1.20	8,760.00
4	Structural Excavation—Class "B,"	.....	.....	.....	.....	Cu. Yds.	2.00	.....
5	Shoulders	.....	.....	.....	.....	Sq. Ft.	0.035	.....
6	Reinforcing Steel	.....	.....	.....	.....	Lbs.	0.04	.....
7	Structural Steel	.....	.....	.....	.....	Lbs.	0.05	.....
8	Concrete Structures—Class "A," Concrete	.....	.....	.....	.....	Cu. Yds.	15.50	.....
9	Concrete Structures—Class "B," Concrete	.....	.....	.....	.....	Cu. Yds.	14.50	.....
10	Portland Cement Concrete Pavement—3 Inch	.....	.....	.....	.....	Sq. Ft.	0.24	.....
11	Portland Cement Concrete Pavement—6 Inch	.....	.....	.....	.....	Sq. Ft.	0.18	.....
12	Asphalt Concrete	.....	.....	.....	.....	Sq. Ft.	0.08	.....
13	Penetration Oil Macadam Pavement	.....	.....	.....	.....	Sq. Ft.	0.14	.....
14	Concrete Curb—8 Inch	.....	.....	.....	.....	Lin. Ft.	0.32	.....
15	Concrete Curb—12 Inch	.....	.....	.....	.....	Lin. Ft.	0.80	.....
16	Concrete Curb—6 Inch with Guard	.....	.....	.....	.....	Lin. Ft.	1.00	.....
17	Concrete Gutters	.....	.....	.....	.....	Sq. Ft.	0.25	.....
18	Cement Sidewalks	.....	.....	.....	.....	Sq. Ft.	0.13	.....
19	Fill Protectors	.....	.....	.....	.....	Each	19.00	.....
20	Corrugated Metal Pipe Culvert—8 Inch	.....	.....	.....	.....	Lin. Ft.	1.30	.....
21	Corrugated Metal Pipe Culvert—12 Inch	.....	.....	.....	.....	Lin. Ft.	2.00	.....
22	Corrugated Metal Pipe Culvert—18 Inch	.....	.....	.....	.....	Lin. Ft.	3.00	.....
23	Reinforced Concrete Pipe Culvert—10 Inch "S"	.....	.....	.....	.....	Lin. Ft.	1.20	.....
24	Reinforced Concrete Pipe Culvert—12 Inch "S"	.....	.....	.....	.....	Lin. Ft.	1.30	.....
25	Reinforced Concrete Pipe Culvert—15 Inch "S"	.....	.....	.....	.....	Lin. Ft.	1.80	.....
26	Reinforced Concrete Pipe Culvert—18 Inch "S"	.....	.....	.....	.....	Lin. Ft.	2.00	.....
27	Reinforced Concrete Pipe Culvert—24 Inch "X"	.....	.....	.....	.....	Lin. Ft.	4.40	.....
28	Reinforced Concrete Pipe Culvert—36 Inch "X"	.....	.....	.....	.....	Lin. Ft.	8.50	.....
29	Victorized Pipe Sewers—8 Inch	.....	.....	.....	.....	Lin. Ft.	1.20	.....
30	Manholes—Standard Toys	.....	.....	.....	.....	Each	90.00	.....
31	Manholes—Inlet Toys	.....	.....	.....	.....	Each	100.00	.....
32	Manholes—Grating Toys	.....	.....	.....	.....	Each	90.00	.....
33	Storm Water Inlets—34 Inch Openings	.....	.....	.....	.....	Each	75.00	.....
34	Storm Water Inlets—"B"	.....	.....	.....	.....	Each	100.00	.....
35	Storm Water Inlets—"C"	.....	.....	.....	.....	Each	80.00	.....
36	Storm Water Inlets—"D"	.....	.....	.....	.....	Each	24.00	.....
37	Lamp Holes—6 Inch	.....	.....	.....	.....	Each	26.00	.....
38	Lamp Holes—8 Inch	.....	.....	.....	.....	Each	36.00	.....
39	Lamp Holes—12 Inch	.....	.....	.....	.....	Each	30.00	.....
40	Hand Hole	.....	.....	.....	.....	Lin. Ft.	1.40	.....
41	Underdrains—8 In. Perfor. Corrug. Metal Pipe	.....	.....	.....	.....	Lin. Ft.	1.50	.....
42	Piping Cast Iron—6 Inch	.....	.....	.....	.....	Lin. Ft.	0.80	.....
43	Guard Rail	.....	.....	.....	.....	Lin. Ft.	3.00	.....
44	Pipe Hand Rail	.....	.....	.....	.....	Lin. Ft.	5.00	.....
45	Riprap	.....	.....	.....	.....	Cu. Yds.	0.13	.....
46	Metal Orbbing	.....	.....	.....	.....	Lbs.	3.00	81.00
47	Stone or Gravel for Foundations	.....	27	.....	27	Cu. Yds.	325.00	.....
48	Tunnel Construction—Type "A,"	.....	.....	.....	.....	Lin. Ft.	400.00	.....
49	Tunnel Construction—Type "B,"	.....	.....	.....	.....	Lin. Ft.	40.00	.....
50	Cross Adits	.....	.....	.....	.....	.....	.....	.....
51	Ventilation Buildings—West and East Bldgs., Complete	.....	1%	.....	1%	Lump Sum	340,000.00	3,400.00
52	Ventilation Equipment—Furn. and Install. Complete	.....	.....	.....	.....	Lump Sum	160,000.00	.....
53	Mechanical Equipment—Furn. and Install. Complete	.....	.....	.....	.....	Lump Sum	60,000.00	.....
54	Electrical Equipment—Furn. and Install. Complete	.....	.....	.....	.....	Lump Sum	210,000.00	.....
55	Carbon Monoxide Detectors and Recorders— Furnishing and Installing Complete	.....	.....	.....	.....	Lump Sum	15,000.00	.....

Estimate Made by C. E. BIGGS

Checked by A. S. GELSTON

Approved J. W. BARKLEY
Chief Asst. Engr.

Approved.....

Approved.....

Total Value of Work Done to Date..... 20,105.00
Deductions—25% of Work Done..... 5,026.25
Deduction—\$100,000.....
Deduction—10% of Work Done.....

Total Due to Date.....
Previous Payments.....

Balance Due on This Estimate..... 15,146.25

This Estimate Approved WALLACE B. BOGGS
District Engineer, Joint Highway District No. 13
of the State of California

Mr. MacDonald: Mr. Muire, you have built a wonderful tunnel that is standing up.

Mr. Thelen: May we thank the Commission for the consideration you have given us.

Mr. MacDonald: Gentlemen, we thank each and every one of you who have come here and assisted, and we appreciate the fine spirit that has been shown here, and we hope with your cooperation, that we will finish the tunnel without any further catastrophe or loss of life.

Mr. Bechtel: We want to do whatever we can in the safest way possible, and will cooperate with you and with the District, and we shall continue to do so.

Meeting adjourned.

[Endorsed]: U. S. Dist. Ct. N. D. Cal. No. 20101-R. Deft's. Ex. No. U U U. Filed April 28, 1938. Walter B. Maling, Clerk. By J. A. Schaertzer, Deputy Clerk.

HARRY M. STOW, Secretary
By L. V. EATON, Assistant Secretary

JOINT HIGHWAY DISTRICT NO. 13
OF THE STATE OF CALIFORNIA
1448 Webster Street
Oakland, Calif.

Estimate No. 2
Contractor—Six Companies of California, Inc.
Street—155 Sansome Street
City—San Francisco, Calif.

Estimate of Work

From July 1, 1932, to July 31, 1934

No.	Items	Total Quantities		Estimate This Month	Total Quantities		Contract Prices	Amounts at Contract Prices
		By Last Estimate	Estimate		To Date	Units		
1	Grading	23,800	101,600	125,400	89,000	Sq. Yds. \$	0.33	41,382
2	Overhaul	20,000	69,000	89,000	11,900	Sq. Yds.	0.066	445
3	Structural Excavation—Class 'A'	7,300	4,000	11,300	10	Cu. Yds.	1.20	13,560
4	Structural Excavation—Class 'B'		10			Cu. Yds.	2.00	30
5	Shoulders					Sq. Ft.	0.035	
6	Reinforcing Steel		107,400	107,400		Lbs.	0.04	4,296
7	Structural Steel					Lbs.	0.05	
8	Concrete Structures—Class 'A' Concrete		292	292		Cu. Yds.	15.50	4,526
9	Concrete Structures—Class 'B' Concrete		242	242		Cu. Yds.	14.50	3,509
10	Portland Cement Concrete Pavement—3 Inch					Sq. Ft.	0.24	
11	Portland Cement Concrete Pavement—6 Inch					Sq. Ft.	0.18	
12	Asphalt Concrete					Sq. Ft.	0.08	
13	Penetration Oil Macadam Pavement					Lbs. Ft.	0.14	
14	Concrete Curb—6 Inch					Lbs. Ft.	0.52	
15	Concrete Curb—12 Inch					Lbs. Ft.	0.80	
16	Concrete Curb—6 Inch with Guard					Lbs. Ft.	1.00	
17	Concrete Gutters					Sq. Ft.	0.25	
18	Cement Sidewalks					Sq. Ft.	0.13	
19	Fill Protectors					Each	19.00	
20	Corrugated Metal Pipe Culvert—3 Inch		50	50		Lbs. Ft.	1.30	65
21	Corrugated Metal Pipe Culvert—12 Inch					Lbs. Ft.	2.00	
22	Corrugated Metal Pipe Culvert—18 Inch					Lbs. Ft.	3.00	
23	Reinforced Concrete Pipe Culvert—12 Inch 'S'					Lbs. Ft.	1.20	
24	Reinforced Concrete Pipe Culvert—12 Inch 'S'					Lbs. Ft.	1.50	
25	Reinforced Concrete Pipe Culvert—15 Inch 'S'					Lbs. Ft.	1.80	
26	Reinforced Concrete Pipe Culvert—15 Inch 'S'					Lbs. Ft.	2.00	
27	Reinforced Concrete Pipe Culvert—24 Inch 'X'					Lbs. Ft.	4.40	
28	Reinforced Concrete Pipe Culvert—36 Inch 'X'					Lbs. Ft.	8.50	
29	Victrolid Pipe Sewers—6 Inch					Lbs. Ft.	1.20	
30	Victrolid Pipe Sewers—8 Inch					Lbs. Ft.	1.20	
31	Manholes—Standard Tops					Each	90.00	
32	Manholes—Inlet Tops					Each	100.00	
33	Manholes—Grating Tops					Each	90.00	
34	Storm Water Inlets—34 Inch Openings					Each	75.00	
35	Storm Water Inlets—'B'					Each	100.00	
36	Storm Water Inlets—'C'					Each	80.00	
37	Lump Holes—6 Inch					Each	24.00	
38	Lump Holes—8 Inch					Each	25.00	
39	Lump Holes—12 Inch					Each	35.00	
40	Hand Hole					Each	30.00	
41	Underdrains—8 In. Perf. Corrug. Metal Pipe		140	140		Lbs. Ft.	1.40	196
42	Piping Cast Iron—6 Inch					Lbs. Ft.	1.50	
43	Guard Rail					Lbs. Ft.	0.80	
44	Pipe Hand Rail					Lbs. Ft.	2.00	
45	Ebrap					Cu. Yds.	5.00	
46	Metal Gribbing					Lbs.	0.13	
47	Stone or Gravel for Foundations		60	60	87	Cu. Yds.	3.00	361
48	Tunnel Construction—Type 'A'					Lbs. Ft.	325.00	
49	Tunnel Construction—Type 'B'					Lbs. Ft.	400.00	
50	Cross Aids					Lbs. Ft.	40.00	
51	Ventilation Buildings—West and East Bldgs., Complete	1%	2%	3%		Lump Sum		10,200
52	Ventilation Equipment—Furn. and Install.					Lump Sum		
53	Mechanical Equipment—Furn. and Install.					Lump Sum		
54	Electrical Equipment—Furn. and Install.					Lump Sum		
55	Carbon Monoxide Detectors and Recorders— Furnishing and Installing Complete					Lump Sum		

Estimate Made by C. E. RIGGS

Checked by A. S. GELSTON

Approved J. W. BARKLEY
Chief Asst. Engr.

Approved
Approved

Total Value of Work Done to Date
Deductions—25% of Work Done
Deduction—\$100.00
Deduction—10% of Work Done

Total Due to Date
Previous Payments
Balance Due on This Estimate

This Estimate Approved WALLACE B. BOGGS

District Engineer, Joint Highway District No. 13
of the State of California

Mr. MacDonald: Mr. Muire, you have built a wonderful tunnel that is standing up.

Mr. Thelen: May we thank the Commission for the consideration you have given us.

Mr. MacDonald: Gentlemen, we thank each and every one of you who have come here and assisted, and we appreciate the fine spirit that has been shown here, and we hope with your cooperation, that we will finish the tunnel without any further catastrophe or loss of life.

Mr. Bechtel: We want to do whatever we can in the safest way possible, and will cooperate with you and with the District, and we shall continue to do so.

Meeting adjourned.

[Endorsed]: U. S. Dist. Ct. N. D. Cal. No. 20101-R. Deft's. Ex. No. U U U. Filed April 28, 1938. Walter B. Maling, Clerk. By J. A. Schaertzer, Deputy Clerk.

Filed With the Board of Directors of Joint Highway District No. 13 of the State of California at Meeting Held September 11, 1934.

HARRY M. STOW, Secretary
By L. V. EATON, Assistant Secretary

Estimate of Work
From August 1, 1934 to August 31, 1934

JOINT HIGHWAY DISTRICT NO. 13
OF THE STATE OF CALIFORNIA
1448 Webster Street
Oakland, Calif.

Estimate No. Three
Contractor—Six Companies of California, Inc.
Street—155 Samone Street
City—San Francisco, Calif.

No.	Items	Total Quantities by Last Estimate	Estimate This Month	Total Quantities Estimated To Date	Units	Contract Prices	Amounts at Contract Prices
1	Grading	125,427	128,997	254,424	Cu. Yds.	\$ 0.33	83,959.92
2	Overhaul	89,000	97,000	186,000	Sta. Yds.	0.006	930.00
3	Structural Excavation—Class "A"	11,300	5,283	16,583	Cu. Yds.	1.20	19,863.60
4	Structural Excavation—Class "B"	10		10	Cu. Yds.	2.00	20.00
5	Shoulders				Sq. Ft.	0.035	
6	Reinforcing Steel	107,400	299,481	406,881	Lbs.	0.04	16,275.24
7	Structural Steel				Lbs.	0.05	
8	Concrete Structures—Class "A"	292	1,611	1,903	Cu. Yds.	15.50	29,496.50
9	Concrete Structures—Class "B"	242	457	699	Cu. Yds.	14.50	10,135.50
10	Portland Cement Concrete Pavement—8 Inch				Sq. Ft.	0.05	
11	Portland Cement Concrete Pavement—6 Inch				Sq. Ft.	0.14	
12	Asphalt Concrete				Lbs.	0.32	
13	Penetration Oil Macadam Pavement				Lbs.	0.80	
14	Concrete Curb—12 Inch				Lbs.	1.00	
15	Concrete Curb—8 Inch				Sq. Ft.	0.25	
16	Concrete Curb—6 Inch with Guard				Sq. Ft.	0.13	
17	Concrete Gutters				Each	19.00	
18	Cement Sidewalks				Each	1.30	91.00
19	Fill Protectors	50	20	70	Lbs.	2.00	228.00
20	Corrugated Metal Pipe Culvert—8 Inch				Lbs.	1.20	
21	Corrugated Metal Pipe Culvert—12 Inch				Lbs.	1.50	
22	Corrugated Metal Pipe Culvert—18 Inch		276	276	Lbs.	1.50	288.00
23	Reinforced Concrete Pipe Culvert—10 Inch "S"				Lbs.	2.00	
24	Reinforced Concrete Pipe Culvert—12 Inch "S"				Lbs.	2.00	
25	Reinforced Concrete Pipe Culvert—14 Inch "S"		160	160	Lbs.	2.00	4,329.60
26	Reinforced Concrete Pipe Culvert—18 Inch "S"				Lbs.	2.00	
27	Reinforced Concrete Pipe Culvert—24 Inch "X"		984	984	Lbs.	9.50	
28	Reinforced Concrete Pipe Culvert—36 Inch "X"				Lbs.	1.20	
29	Vitrified Pipe Sewers—6 Inch				Lbs.	1.00	
30	Vitrified Pipe Sewers—8 Inch				Each	90.00	
31	Manholes—Standard Tops				Each	100.00	
32	Manholes—Inlet Tops				Each	90.00	
33	Manholes—Grating Tops				Each	75.00	
34	Storm Water Inlets—34 Inch Openings				Each	100.00	
35	Storm Water Inlets—"B"				Each	80.00	
36	Storm Water Inlets—"C"				Each	24.00	
37	Lamp Holes—6 Inch				Each	26.00	
38	Lamp Holes—8 Inch				Each	36.00	
39	Lamp Holes—12 Inch				Each	30.00	
40	Hand Hole				Lbs.	1.40	1,652.00
41	Underdrains—8 In. Perf. Corrug. Metal Pipe	140	1,040	1,180	Lbs.	1.50	
42	Piping Cast Iron—6 Inch				Lbs.	0.80	
43	Guard Rail				Lbs.	3.00	
44	Pipe Hand Rail				Cu. Yds.	5.00	
45	Ribrap				Lbs.	0.13	
46	Metal Gribbing				Cu. Yds.	3.00	750.00
47	Stone or Gravel for Foundations	87	163	250	Lbs.	325.00	6,500.00
48	Tunnel Construction—Type "A", 50% of 40 ft.		20	20	Lbs.	40.00	
49	Tunnel Construction—Type "B"				Lbs.	40.00	
50	Cross Adits				Lbs.	40.00	
51	Ventilation Buildings—West and East Bldgs., Complete				Lump Sum		
52	Ventilation Buildings—Furn. and Install.				Lump Sum	340,000.00	
53	Mechanical Equipment—Furn. and Install.	3%	7%	10%	Lump Sum	160,000.00	34,000.00
54	Electrical Equipment—Furn. and Install.				Lump Sum	60,000.00	
55	Carbon Monoxide Detectors and Records—Furnishing and Installing Complete				Lump Sum	210,000.00	
					Lump Sum	15,000.00	

Estimate Made by C. E. RIGGS

Checked by A. S. GELSTON

Approved J. W. BARKLEY
Chief Asst. Engr.

Approved
Approved

Total Value of Work Done to Date
Deductions—25% of Work Done
Deduction—\$100,000
Deduction—10% of Work Done

Total Due to Date
Previous Payments
Balance Due on This Estimate

This Estimate Approved WALLACE B. BOGGS

District Engineer, Joint Highway District No. 13
of the State of California

Mr. MacDonald: Mr. Muire, you have built a wonderful tunnel that is standing up.

Mr. Thelen: May we thank the Commission for the consideration you have given us.

Mr. MacDonald: Gentlemen, we thank each and every one of you who have come here and assisted, and we appreciate the fine spirit that has been shown here, and we hope with your cooperation, that we will finish the tunnel without any further catastrophe or loss of life.

Mr. Bechtel: We want to do whatever we can in the safest way possible, and will cooperate with you and with the District, and we shall continue to do so.

Meeting adjourned.

[Endorsed]: U. S. Dist. Ct. N. D. Cal. No. 20101-R. Deft's. Ex. No. U U U. Filed April 28, 1938. Walter B. Maling, Clerk. By J. A. Schaertzer, Deputy Clerk.

Filed With the Board of Directors of Joint Highway District No. 13 of the State of California at Meeting Held
October 9, 1934.

HARRY M. STOW, Secretary
By L. V. EATON, Assistant Secretary

JOINT HIGHWAY DISTRICT NO. 13
OF THE STATE OF CALIFORNIA

Estimate of Work

Estimate No. Four
Contractor—Six Companies of California, Inc.
Street—135 Sansome Street
City—San Francisco, Calif.

From September 1, 1934 to September 30, 1934

1448 Webster Street
Oakland, Calif.

No.	Items	Total Quantities by Last Estimate	Estimate This Month	Total Quantities Estimated To Date	Units	Contract Prices	Amounts at Contract Prices
1	Grading	254,424	159,832	414,256	Cu. Yds. \$	0.33	136,704.48
2	Overhaul	186,000	94,000	280,000	Sta. Yds.	0.003	1,400.00
3	Structural Excavation—Glass 'A'	16,553	5,611	25,164	Cu. Yds.	1.20	30,196.80
4	Structural Excavation—Glass 'B'	10	0	10	Cu. Yds.	2.00	20.00
5	Shoulders				Sq. Ft.	0.035	
6	Reinforcing Steel	406,881	333,115	739,996	Lbs.	0.04	29,599.84
7	Structural Steel				Lbs.	0.05	
8	Concrete Structures—Glass 'A'	1,903	1,743	3,646	Cu. Yds.	15.50	56,515.00
9	Concrete Structures—Glass 'B'	699	157	856	Cu. Yds.	14.50	12,412.00
10	Portland Cement Concrete Pavement—8 Inch				Sq. Ft.	0.24	
11	Portland Cement Concrete Pavement—6 Inch				Sq. Ft.	0.18	
12	Asphalt Concrete				Sq. Ft.	0.08	
13	Penetration Oil Macadam Pavement				Sq. Ft.	0.14	
14	Concrete Curbs—6 Inch				Lin. Ft.	0.52	
15	Concrete Curbs—12 Inch				Lin. Ft.	0.80	
16	Concrete Curbs—6 Inch with Guard				Lin. Ft.	1.00	
17	Concrete Gutters				Sq. Ft.	0.25	
18	Cement Sidewalks				Sq. Ft.	0.13	
19	Full Protectors				Each	19.00	
20	Corrugated Metal Pipe Culvert—8 Inch	70		70	Lin. Ft.	1.30	91.00
21	Corrugated Metal Pipe Culvert—12 Inch				Lin. Ft.	2.00	
22	Corrugated Metal Pipe Culvert—18 Inch	276		276	Lin. Ft.	3.00	828.00
23	Reinforced Concrete Pipe Culvert—10 Inch 'S'		34	34	Lin. Ft.	1.50	51.00
24	Reinforced Concrete Pipe Culvert—12 Inch 'S'	160		160	Lin. Ft.	1.80	288.00
25	Reinforced Concrete Pipe Culvert—15 Inch 'S'				Lin. Ft.	2.00	
26	Reinforced Concrete Pipe Culvert—18 Inch 'S'	984	216	1,200	Lin. Ft.	4.40	5,280.00
27	Reinforced Concrete Pipe Culvert—24 Inch 'X'		579	579	Lin. Ft.	8.50	4,921.50
28	Reinforced Concrete Pipe Culvert—36 Inch 'X'	180		180	Lin. Ft.	1.00	180.00
29	Vitrified Pipe Sewers—6 Inch				Lin. Ft.	1.20	
30	Vitrified Pipe Sewers—8 Inch		6	6	Each	90.00	540.00
31	Manholes—Standard Tops		2	2	Each	100.00	200.00
32	Manholes—Inlet Tops				Each	90.00	
33	Manholes—Grating Tops				Each	90.00	
34	Storm Water Inlets—34 Inch Openings				Each	75.00	
35	Storm Water Inlets—'B'				Each	100.00	
36	Storm Water Inlets—'C'		1	1	Each	80.00	
37	Lamp Holes—8 Inch				Each	24.00	
38	Lamp Holes—6 Inch				Each	26.00	
39	Lamp Holes—12 Inch				Each	36.00	
40	Hand Hole				Each	30.00	
41	Underdrains—8 In. Per. Corrug. Metal Pipe	1,180	250	1,430	Lin. Ft.	1.40	2,002.00
42	Piping Cast Iron—6 Inch				Lin. Ft.	1.50	
43	Guard Rail				Lin. Ft.	0.80	
44	Pipe Hand Rail				Lin. Ft.	3.00	
45	Riprap				Cu. Yds.	5.00	
46	Metal Cribbing				Lbs.	0.13	
47	Stone or Gravel for Foundations	250	11	261	Cu. Yds.	3.00	783.00
48	Tunnel Construction—Type 'A'	20	30	50	Lin. Ft.	325.00	16,250.00
49	Tunnel Construction—Type 'B'				Lin. Ft.	400.00	
50	Cross Adits				Lin. Ft.	40.00	
51	Ventilation Buildings—West and East Bldgs., Complete	10%	9%	19%	Lump Sum		64,500.00
52	Ventilation Equipment—Furn. and Install. Complete				Lump Sum	340,000.00	
53	Mechanical Equipment—Furn. and Install. Complete				Lump Sum	160,000.00	
54	Electrical Equipment—Furn. and Install. Complete				Lump Sum	60,000.00	
55	Carbon Monoxide Detectors and Recorders— Furnishing and Installing Complete				Lump Sum	210,000.00	
					Lump Sum	15,000.00	

Estimate Made by C. E. RIGGS

Checked by A. S. GELSTON

Approved J. W. BARKLEY
Chief Asst. Engr.

Approved

Approved

Total Value of Work Done to Date	362,584.62
Deductions—25% of Work Done	90,721.16
Deduction—\$100,000	
Deduction—10% of Work Done	
Total Due to Date	272,163.46
Previous Payments	156,839.52
Balance Due on This Estimate	115,323.94

This Estimate Approved

WALLACE B. BOGGS

District Engineer, Joint Highway District No. 13
of the State of California

Mr. MacDonald: Mr. Muire, you have built a wonderful tunnel that is standing up.

Mr. Thelen: May we thank the Commission for the consideration you have given us.

Mr. MacDonald: Gentlemen, we thank each and every one of you who have come here and assisted, and we appreciate the fine spirit that has been shown here, and we hope with your cooperation, that we will finish the tunnel without any further catastrophe or loss of life.

Mr. Bechtel: We want to do whatever we can in the safest way possible, and will cooperate with you and with the District, and we shall continue to do so.

Meeting adjourned.

[Endorsed]: U. S. Dist. Ct. N. D. Cal. No. 20101-R. Deft's. Ex. No. U U U. Filed April 28, 1938. Walter B. Maling, Clerk. By J. A. Schaertzer, Deputy Clerk.

Filed With the Board of Directors of Joint Highway District No. 13 of the State of California at Meeting Held November 6, 1934.

HARRY M. STOW, Secretary
By L. V. EATON, Assistant Secretary

Estimate of Work
From October 1, 1934 to October 31, 1934

JOINT HIGHWAY DISTRICT NO. 13
OF THE STATE OF CALIFORNIA
1448 Webster Street
Oakland, Calif.

Estimate No. Five
Contractor—Six Companies of California, Inc.
Street—155 Sansome Street
City—San Francisco, Calif.

No.	Items	Total Quantities by Last Estimate	Estimate This Month	Total Quantities Estimated To Date	Units	Contract Prices	Amount at Contract Price
1	Grading	414,256	204,614	618,870	Cu. Yds. \$	0.33	204,227.10
2	Overhaul	280,000	1,000,000	1,280,000	Sq. Yds.	0.005	6,400.00
3	Structural Excavation—Class "A"	25,164	5,487	30,651	Cu. Yds.	1.20	36,781.20
4	Structural Excavation—Class "B"	10		10	Cu. Yds.	2.00	20.00
5	Shoulders				Sq. Ft.	0.035	
6	Reinforcing Steel	739,996	257,982	997,978	Lbs.	0.04	39,919.12
7	Structural Steel				Cu. Yds.	0.05	
8	Concrete Structures—Class "A"	3,646	1,730	5,376	Cu. Yds.	15.50	83,398.00
9	Concrete Structures—Class "B"	556		556	Cu. Yds.	14.50	12,412.00
10	Portland Cement Concrete Pavement—8 Inch				Sq. Ft.	0.18	
11	Portland Cement Concrete Pavement—6 Inch				Sq. Ft.	0.08	
12	Asphalt Concrete				Sq. Ft.	0.14	
13	Penetration Oil Macadam Pavement				Lin. Ft.	0.32	
14	Concrete Curb—6 Inch				Lin. Ft.	0.80	
15	Concrete Curb—12 Inch				Lin. Ft.	1.00	
16	—Concrete Curb—6 Inch with Guard				Sq. Ft.	0.25	
17	Concrete Gutters				Sq. Ft.	0.13	
18	Concrete Sidewalks				Each	19.00	
19	Fill Protectors	70		70	Lin. Ft.	1.30	91.00
20	Corrugated Metal Pipe Culvert—8 Inch				Lin. Ft.	2.00	
21	Corrugated Metal Pipe Culvert—12 Inch				Lin. Ft.	3.00	1,146.00
22	Corrugated Metal Pipe Culvert—18 Inch	276	106	382	Lin. Ft.	1.20	
23	Reinforced Concrete Pipe Culvert—10 Inch "S"				Lin. Ft.	1.50	51.00
24	Reinforced Concrete Pipe Culvert—12 Inch "S"	34		34	Lin. Ft.	1.80	288.00
25	Reinforced Concrete Pipe Culvert—14 Inch "S"	160		160	Lin. Ft.	2.00	
26	Reinforced Concrete Pipe Culvert—18 Inch "S"				Lin. Ft.	4.40	5,623.20
27	Reinforced Concrete Pipe Culvert—24 Inch "X"	1,200	78	1,278	Lin. Ft.	8.50	4,921.50
28	Reinforced Concrete Pipe Culvert—36 Inch "X"	579		579	Lin. Ft.	1.00	180.00
29	Vitrified Pipe Sewers—6 Inch	180		180	Lin. Ft.	1.20	
30	Vitrified Pipe Sewers—8 Inch				Each	90.00	540.00
31	Manholes—Standard Tops	6		6	Each	100.00	200.00
32	Manholes—Inlet Tops	2		2	Each	90.00	
33	Manholes—Grating Tops				Each	75.00	
34	Storm Water Inlets—34 Inch Openings				Each	100.00	
35	Storm Water Inlets—"B"				Each	80.00	
36	Storm Water Inlets—"C"				Each	24.00	24.00
37	Lump Holes—6 Inch				Each	26.00	
38	Lump Holes—8 Inch	1		1	Each	36.00	
39	Lump Holes—12 Inch				Each	30.00	
40	Hand Hole				Each	1.40	2,136.40
41	Underdrains—8 In. Perf. Corrug. Metal Pipe	1,430	96	1,526	Lin. Ft.	1.50	
42	Piping Cast Iron—6 Inch				Lin. Ft.	0.80	42.40
43	Guard Rail		53	53	Lin. Ft.	3.00	
44	Pipe Hand Rail				Cu. Yds.	3.00	
45	Eltrap				Lbs.	0.13	
46	Metal Cribbing				Cu. Yds.	3.00	786.00
47	Stone or Gravel for Foundations	261	1	262	Lin. Ft.	325.00	26,000.00
48	Tunnel Construction—Type "A"	50	30	80	Lin. Ft.	400.00	
49	Tunnel Construction—Type "B"				Lin. Ft.	40.00	
50	Cross Adits				Lump Sum		74,800.00
51	Ventilation Buildings—West and East Bldgs., Complete		3%	22%	Lump Sum		
52	Ventilation Equipment—Furn. and Install.				Lump Sum		160,000.00
53	Mechanical Equipment—Furn. and Install.				Lump Sum		60,000.00
54	Electrical Equipment—Furn. and Install.				Lump Sum		210,000.00
55	Carbon Monoxide Detectors and Recorders—Furnishing and Installing Complete				Lump Sum		15,000.00

Estimate Made by C. E. RIGGS

Checked by A. S. GELSTON

Approved J. W. BARKLEY
Chief Asst. Engr.

Total Value of Work Done to Date
Deductions—25% of Work Done
Deduction—\$100,000
Deduction—10% of Work Done

Total Due to Date

Previous Payments

Balance Due on This Estimate

This Estimate Approved

WALLACE B. BOGGS

District Engineer, Joint Highway District No. 13
of the State of California

499,916.92

100,000.00

399,916.92

272,163.46

127,753.46

Mr. MacDonald: Mr. Muire, you have built a wonderful tunnel that is standing up.

Mr. Thelen: May we thank the Commission for the consideration you have given us.

Mr. MacDonald: Gentlemen, we thank each and every one of you who have come here and assisted, and we appreciate the fine spirit that has been shown here, and we hope with your cooperation, that we will finish the tunnel without any further catastrophe or loss of life.

Mr. Bechtel: We want to do whatever we can in the safest way possible, and will cooperate with you and with the District, and we shall continue to do so.

Meeting adjourned.

[Endorsed]: U. S. Dist. Ct. N. D. Cal. No. 20101-R. Deft's. Ex. No. U U U. Filed April 28, 1938. Walter B. Maling, Clerk. By J. A. Schaertzer, Deputy Clerk.

HARRY M. STOW, Secretary
By L. V. EATON, Assistant Secretary

Estimate No. Six
Contractor—Six Companies of California, Inc.
Street—155 Sansome Street
City—San Francisco, Calif.

JOINT HIGHWAY DISTRICT NO. 13
OF THE STATE OF CALIFORNIA
1448 Webster Street
Oakland, Calif.

Estimate of Work

From November 1, 1934 to November 30, 1934

No.	Items	Total Quantities by Last Estimate	Estimate This Month	Total Quantities To Date	Unit	Contract Prices	Amounts at Contract Prices
1	Grading	618,870	85,142	704,012	Cu. Yds.	\$ 0.33	232,923.96
2	Overhaul	1,280,000	410,000	1,690,000	Sta. Yds.	0.005	8,450.00
3	Structural Excavation—Class "A"	30,651	397	31,048	Cu. Yds.	1.20	37,257.60
4	Structural Excavation—Class "B"	10		10	Cu. Yds.	2.00	20.00
5	Shoulders				Sq. Ft.	0.035	
6	Reinforcing Steel	997,978	338,387	1,336,365	Lbs.	0.04	53,454.60
7	Structural Steel				Lbs.	0.05	
8	Concrete Structures—Class "A," Concrete	5,376	1,543	6,919	Cu. Yds.	15.50	107,244.50
9	Concrete Structures—Class "B," Concrete	856		856	Cu. Yds.	14.50	12,412.00
10	Portland Cement Concrete Pavement—3 Inch				Sq. Ft.	0.24	
11	Portland Cement Concrete Pavement—6 Inch				Sq. Ft.	0.18	
12	Asphalt Concrete				Sq. Ft.	0.08	
13	Penetration Oil Macadam Pavement				Sq. Ft.	0.14	
14	Concrete Curb—6 Inch				Lin. Ft.	0.52	
15	Concrete Curb—12 Inch				Lin. Ft.	0.80	
16	Concrete Curb—6 Inch with Guard				Lin. Ft.	1.00	
17	Concrete Gutters				Sq. Ft.	0.25	
18	Cement Sidewalks				Sq. Ft.	0.13	
19	Fill Protectors	70		70	Each	19.00	
20	Corrugated Metal Pipe Culvert—8 Inch				Lin. Ft.	1.30	91.00
21	Corrugated Metal Pipe Culvert—12 Inch		136	136	Lin. Ft.	2.00	272.00
22	Corrugated Metal Pipe Culvert—18 Inch	392	56	448	Lin. Ft.	3.00	1,344.00
23	Reinforced Concrete Pipe Culvert—10 Inch "S"				Lin. Ft.	1.20	
24	Reinforced Concrete Pipe Culvert—12 Inch "S"	34		34	Lin. Ft.	1.50	51.00
25	Reinforced Concrete Pipe Culvert—15 Inch "S"	160		160	Lin. Ft.	1.80	288.00
26	Reinforced Concrete Pipe Culvert—18 Inch "S"		46	46	Lin. Ft.	2.00	92.00
27	Reinforced Concrete Pipe Culvert—24 Inch "X"	1,278		1,324	Lin. Ft.	4.40	5,825.60
28	Reinforced Concrete Pipe Culvert—36 Inch "X"	579		579	Lin. Ft.	8.50	4,921.50
29	Vitrified Pipe Sewers—6 Inch	180	20	200	Lin. Ft.	1.00	200.00
30	Vitrified Pipe Sewers—8 Inch		30	30	Lin. Ft.	1.20	36.00
31	Manholes—Standard Tops	6		6	Each	90.00	540.00
32	Manholes—Inlet Tops	2		2	Each	100.00	200.00
33	Manholes—Grating Tops				Each	90.00	
34	Storm Water Inlets—34 Inch Openings				Each	75.00	
35	Storm Water Inlets—"B"		3	3	Each	100.00	300.00
36	Storm Water Inlets—"C"				Each	80.00	
37	Lamp Holes—6 Inch				Each	24.00	
38	Lamp Holes—8 Inch				Each	26.00	
39	Lamp Holes—12 Inch				Each	36.00	
40	Road Hole				Each	30.00	
41	Underdrains—8 In. Perf. Corrug. Metal Pipe	1,526		1,526	Lin. Ft.	1.40	2,136.40
42	Piping Cast Iron—6 Inch				Lin. Ft.	1.50	
43	Guard Rail	53		53	Lin. Ft.	0.80	42.40
44	Pipe Hand Rail				Lin. Ft.	3.00	
45	Ebrap				Cu. Yds.	5.00	
46	Metal Cribbing				Lbs.	0.13	
47	Stone or Gravel for Foundations	262	4	266	Cu. Yds.	3.00	798.00
48	Tunnel Construction—Type "A"	80	49	129	Lin. Ft.	325.00	41,925.00
49	Tunnel Construction—Type "B"				Lin. Ft.	400.00	
50	Cross Adits				Lin. Ft.	40.00	
51	Ventilation Buildings—West and East Bldgs., Complete	22%	6%	28%	Lump Sum		95,200.00
52	Ventilation Equipment—Furn. and Install. Complete				Lump Sum		
53	Mechanical Equipment—Furn. and Install. Complete				Lump Sum		
54	Electrical Equipment—Furn. and Install. Complete				Lump Sum		
55	Carbon Monoxide Detectors and Recorders—Furnishing and Installing Complete				Lump Sum		

Estimate Made by C. E. RIGGS

Checked by A. S. GELSTON

Approved J. W. BARKLEY
Chief Asst. Engr.

Approved
Approved

Total Value of Work Done to Date..... 605,447.56
Deductions—23% of Work Done.....
Deduction—\$100,000..... 100,000.00
Deduction—10% of Work Done.....
Total Due to Date..... 505,447.56
Previous Payments..... 389,916.92
Balance Due on This Estimate..... 105,530.64

This Estimate Approved WALLACE B. BOGGS
District Engineer, Joint Highway District No. 13
of the State of California

Mr. MacDonald: Mr. Muire, you have built a wonderful tunnel that is standing up.

Mr. Thelen: May we thank the Commission for the consideration you have given us.

Mr. MacDonald: Gentlemen, we thank each and every one of you who have come here and assisted, and we appreciate the fine spirit that has been shown here, and we hope with your cooperation, that we will finish the tunnel without any further catastrophe or loss of life.

Mr. Bechtel: We want to do whatever we can in the safest way possible, and will cooperate with you and with the District, and we shall continue to do so.

Meeting adjourned.

[Endorsed]: U. S. Dist. Ct. N. D. Cal. No. 20101-R. Deft's. Ex. No. U U U. Filed April 28, 1938. Walter B. Maling, Clerk. By J. A. Schaertzer, Deputy Clerk.

Filed With the Board of Directors of Joint Highway District No. 13 of the State of California at Meeting Held January 8, 1935.

HARRY M. STOW, Secretary
By L. V. EATON, Assistant Secretary

JOINT HIGHWAY DISTRICT NO. 13
OF THE STATE OF CALIFORNIA
1448 Webster Street
Oakland, Calif.

Estimate No. Seven
Contractor—Six Companies of California, Inc.
Street—155 Sansome Street
City—San Francisco, Calif.

Estimate of Work

From December 1, 1934 to December 31, 1934

No.	Items	Total Quantities by Last Estimate	Estimate This Month	Total Quantities Estimated To Date	Units	Contract Prices	Amounts at Contract Prices
1	Grading	704,012	13,437	717,449	Cu. Yds.	\$ 0.33	236,758.17
2	Overhaul	1,690,000		1,690,000	Sq. Yds.	0.005	8,450.00
3	Structural Excavation—Class 'A'	31,048	1,505	32,553	Cu. Yds.	1.20	39,171.60
4	Structural Excavation—Class 'B'	10	127	137	Cu. Yds.	2.00	274.00
5	Shoulders				Sq. Ft.	0.035	
6	Reinforcing Steel	1,336,365	159,000	1,495,365	Lbs.	0.04	59,814.60
7	Structural Steel				Lbs.	0.05	
8	Concrete Structures—Class 'A' Concrete	6,919	1,379	8,298	Cu. Yds.	15.90	128,619.00
9	Concrete Structures—Class 'B' Concrete	856		856	Cu. Yds.	14.90	12,412.00
10	Portland Cement Concrete Pavement—8 Inch				Sq. Ft.	0.94	
11	Portland Cement Concrete Pavement—6 Inch				Sq. Ft.	0.18	
12	Asphalt Concrete				Sq. Ft.	0.08	
13	Penetration Oil Macadam Pavement				Sq. Ft.	0.14	
14	Concrete Curb—6 Inch				Lin. Ft.	0.52	
15	Concrete Curb—12 Inch				Lin. Ft.	0.80	
16	Concrete Curb—6 Inch with Guard				Lin. Ft.	1.00	
17	Concrete Gutters				Sq. Ft.	0.25	
18	Cement Sidewalks				Sq. Ft.	0.13	
19	Fill Protectors				Each	19.00	
20	Corrugated Metal Pipe Culvert—8 Inch	70		70	Lin. Ft.	1.30	91.00
21	Corrugated Metal Pipe Culvert—12 Inch	136		136	Lin. Ft.	2.00	272.00
22	Corrugated Metal Pipe Culvert—18 Inch	438		438	Lin. Ft.	3.00	1,314.00
23	Reinforced Concrete Pipe Culvert—12 Inch 'S'				Lin. Ft.	1.20	
24	Reinforced Concrete Pipe Culvert—12 Inch 'S'	34		34	Lin. Ft.	1.50	51.00
25	Reinforced Concrete Pipe Culvert—15 Inch 'S'	160	285	395	Lin. Ft.	1.80	711.00
26	Reinforced Concrete Pipe Culvert—18 Inch 'S'				Lin. Ft.	2.00	
27	Reinforced Concrete Pipe Culvert—24 Inch 'X'	1,324		1,324	Lin. Ft.	4.40	5,825.60
28	Reinforced Concrete Pipe Culvert—36 Inch 'X'	579		579	Lin. Ft.	8.50	4,921.50
29	Vitrified Pipe Sewers—6 Inch	200		200	Lin. Ft.	1.00	200.00
30	Vitrified Pipe Sewers—8 Inch	30	27	57	Lin. Ft.	1.20	68.40
31	Manholes—Standard Tops	6		6	Each	90.00	540.00
32	Manholes—Inlet Tops	2		2	Each	100.00	200.00
33	Manholes—Grating Tops	2	1	3	Each	75.00	225.00
34	Storm Water Inlets—34 Inch Openings				Each	100.00	
35	Storm Water Inlets—'B'	3		3	Each	80.00	240.00
36	Storm Water Inlets—'C'	1		1	Each	24.00	24.00
37	Lamp Holes—6 Inch				Each	28.00	
38	Lamp Holes—8 Inch				Each	38.00	
39	Lamp Holes—12 Inch				Each	30.00	
40	Hand Hole				Each	1.40	
41	Underdrains—8 In. Perf. Corrug. Metal Pipe	1,526	60	1,586	Lin. Ft.	1.50	2,379.00
42	Piping Cast Iron—6 Inch				Lin. Ft.	0.80	
43	Guard Rail	53		53	Lin. Ft.	1.90	100.70
44	Pipe Hand Rail				Lin. Ft.	3.00	
45	Riprap				Cu. Yds.	5.00	
46	Metal Cribbing				Lbs.	0.13	
47	Stone or Gravel for Foundations	266		266	Cu. Yds.	3.00	798.00
48	Tunnel Construction—Type 'A'	129	45	174	Lin. Ft.	325.00	56,550.00
49	Tunnel Construction—Type 'B'				Lin. Ft.	400.00	
50	Cross Adits				Lin. Ft.	40.00	
51	Ventilation Buildings—West and East Bldgs., Complete	28%	3%	31%	Lump Sum		105,400.00
52	Ventilation Equipment—Furn. and Install.				Lump Sum		
53	Mechanical Equipment—Furn. and Install.				Lump Sum	160,000.00	
54	Electrical Equipment—Furn. and Install.				Lump Sum	60,000.00	
55	Carbon Monoxide Detectors and Records—Furnishing and Installing Complete		3½%	3½%	Lump Sum	210,000.00	7,350.00
					Lump Sum	15,000.00	

Estimate Made by C. E. RIGGS

Checked by A. S. GEILSTON

Approved J. W. BARKLEY
Chief Asst. Engr.

Approved

Approved

Total Value of Work Done to Date.....
Deductions—25% of Work Done.....
Deduction—\$100,000.....
Deduction—10% of Work Done.....

Total Due to Date.....
Previous Payments.....
Balance Due on This Estimate.....

This Estimate Approved WALLACE B. BOGGS
District Engineer, Joint Highway District No. 13
of the State of California

Mr. MacDonald: Mr. Muire, you have built a wonderful tunnel that is standing up.

Mr. Thelen: May we thank the Commission for the consideration you have given us.

Mr. MacDonald: Gentlemen, we thank each and every one of you who have come here and assisted, and we appreciate the fine spirit that has been shown here, and we hope with your cooperation, that we will finish the tunnel without any further catastrophe or loss of life.

Mr. Bechtel: We want to do whatever we can in the safest way possible, and will cooperate with you and with the District, and we shall continue to do so.

Meeting adjourned.

[Endorsed]: U. S. Dist. Ct. N. D. Cal. No. 20101-R. Deft's. Ex. No. U U U. Filed April 28, 1938. Walter B. Maling, Clerk. By J. A. Schaertzer, Deputy Clerk.

Filed With the Board of Directors of Joint Highway District No. 13 of the State of California at Meeting Held February 6, 1935.

HARRY M. STOW, Secretary
By L. V. EATON, Assistant Secretary

JOINT HIGHWAY DISTRICT NO. 13
OF THE STATE OF CALIFORNIA
1448 Webster Street
Oakland, Calif.

Estimate No. Eight
Contractor—Six Companies of California, Inc.
Street—135 Sansome Street
City—San Francisco, Calif.

Estimate of Work

From January 1, 1935 to January 31, 1935

No.	Items	Total Quantities by Last Estimate	Estimate This Month	Total Quantities Estimated To Date	Units	Contract Prices	Amounts at Contract Prices
1	Grading	717,449	15,670	733,119	Cu. Yds.	\$ 0.33	\$ 241,929.27
2	Overhaul	1,690,000	95,000	1,785,000	Sta. Yds.	0.005	8,925.00
3	Structural Excavation—Class "A"	32,643	112	32,755	Cu. Yds.	1.20	39,306.00
4	Structural Excavation—Class "B"	137		137	Cu. Yds.	2.00	274.00
5	Shoulders				Sq. Ft.	0.035	
6	Reinforcing Steel	1,495,365	28,550	1,523,915	Lbs.	0.04	60,956.60
7	Structural Steel				Lbs.	0.05	
8	Concrete Structures—Class "A" Concrete	8,298	206	8,504	Cu. Yds.	13.50	131,812.00
9	Concrete Structures—Class "B" Concrete	856	minus 51.2	804.8	Cu. Yds.	14.50	11,669.60
10	Portland Cement Concrete Pavement—8 Inch				Sq. Ft.	0.24	
11	Portland Cement Concrete Pavement—6 Inch				Sq. Ft.	0.18	
12	Asphalt Concrete				Sq. Ft.	0.08	
13	Penetration Oil Macadam Pavement				Sq. Ft.	0.14	
14	Concrete Curbs—6 Inch				Lin. Ft.	0.52	
15	Concrete Curbs—12 Inch				Lin. Ft.	0.80	
16	Concrete Curb—6 Inch with Guard				Lin. Ft.	1.00	
17	Concrete Gutters				Sq. Ft.	0.25	
18	Cement Sidewalks				Sq. Ft.	0.13	
19	Fill Protection				Each	19.00	
20	Corrugated Metal Pipe Culvert—8 Inch	70		70	Lin. Ft.	1.30	91.00
21	Corrugated Metal Pipe Culvert—12 Inch	136		136	Lin. Ft.	2.00	273.00
22	Corrugated Metal Pipe Culvert—16 Inch	438		438	Lin. Ft.	3.00	1,314.00
23	Reinforced Concrete Pipe Culvert—10 Inch "S"				Lin. Ft.	1.20	
24	Reinforced Concrete Pipe Culvert—12 Inch "S"	34	213	247	Lin. Ft.	1.50	370.50
25	Reinforced Concrete Pipe Culvert—14 Inch "S"	395		395	Lin. Ft.	1.80	711.00
26	Reinforced Concrete Pipe Culvert—18 Inch "S"				Lin. Ft.	2.00	
27	Reinforced Concrete Pipe Culvert—24 Inch "X"	1,324		1,324	Lin. Ft.	4.40	5,825.60
28	Reinforced Concrete Pipe Culvert—36 Inch "X"	579		579	Lin. Ft.	8.50	4,921.50
29	Victrola Pipe Saver—6 Inch	200	5	205	Lin. Ft.	1.00	205.00
30	Victrola Pipe Saver—8 Inch	57		57	Lin. Ft.	1.30	68.40
31	Victrola Pipe Saver—12 Inch	6		6	Each	80.00	540.00
32	Manholes—Standard Tops	2		2	Each	100.00	200.00
33	Manholes—Flat Tops	3		3	Each	90.00	270.00
34	Storm Water Inlets—14 Inch Openings				Each	75.00	
35	Storm Water Inlets—18 Inch				Each	100.00	
36	Storm Water Inlets—"O"	3		3	Each	80.00	240.00
37	Lamp Holes—6 Inch	1		1	Each	24.00	24.00
38	Lamp Holes—8 Inch				Each	36.00	
39	Lamp Holes—12 Inch	1	1	2	Each	30.00	72.00
40	Hand Ride				Lin. Ft.	1.40	
41	Underdrains—8 In. Perf. Corrug. Metal Pipe	1,586	40	1,626	Lin. Ft.	1.50	2,276.40
42	Piping Cast Iron—6 Inch				Lin. Ft.	0.80	
43	Guard Rail	53		53	Lin. Ft.	3.00	42.40
44	Pipe Hand Rail				Cu. Yds.	5.00	630.00
45	Reinforcing Steel	126		126	Lbs.	0.13	
46	Reinforcing Steel	266		266	Cu. Yds.	3.00	798.00
47	Stone or Gravel for Foundations	174	74	248	Lin. Ft.	323.00	80,600.00
48	Tunnel Construction—Type "A"				Lin. Ft.	400.00	
49	Tunnel Construction—Type "B"				Lin. Ft.	40.00	
50	Cross Adits				Lump Sum		
51	Ventilation Buildings—West and East Bldgs., Complete	31%	2%	33%		340,000.00	112,200.00
52	Ventilation Equipment—Furn. and Install. Complete				Lump Sum		
53	Mechanical Equipment—Furn. and Install. Complete				Lump Sum	160,000.00	
54	Electrical Equipment—Furn. and Install. Complete				Lump Sum	60,000.00	
55	Carbon Monoxide Detectors and Records—Furnishing and Installing Complete	31½%		31½%	Lump Sum	210,000.00	7,350.00
					Lump Sum	15,000.00	

Estimate Made by C. E. RIGGS

Checked by A. S. GELSTON

Approved J. W. BARKLEY

Chief Asst. Engr.

Approved

Approved

Total Value of Work Done to Date
Deductions—25% of Work Done
Deduction—\$100,000
Deduction—10% of Work Done

Total Due to Date
Previous Payments
Balance Due on This Estimate

713,894.27
100,000.00
613,894.27
573,254.67
40,639.60

This Estimate Approved

WALLACE B. BOGGS

District Engineer, Joint Highway District No. 13
of the State of California

Filed With the Board of Directors of Joint Highway District No. 13 of the State of California at Meeting Held
March 9, 1935.

HARRY M. STOW, Secretary
By L. V. EATON, Assistant Secretary

JOINT HIGHWAY DISTRICT NO. 13 Estimate No. Nine
OF THE STATE OF CALIFORNIA Contractor—Six Companies of California, Inc.
1448 Webster Street Street—155 Sansome Street
Oakland, Calif. City—San Francisco, Calif.

Estimate of Work

From February 1, 1935 to February 28, 1935

No.	Item	Total Quantities by Last Estimate	Estimate This Month	Total Quantities Estimated To Date	Units	Contract Prices	Amounts at Contract Price
1	Grading	733.119	445,898	733.119	Cu. Yds.	\$ 0.33	241,929.27
2	Overhaul	1,785,000		2,230,828	Sta. Yds.	0.005	11,154.14
3	Structural Excavation—Class "A,"	32,755	79	32,834	Cu. Yds.	1.30	39,400.80
4	Structural Excavation—Class "B,"	137		137	Cu. Yds.	2.00	274.00
5	Shoulders	1,523.915		1,523.915	Sq. Ft.	0.035	60,956.60
6	Reinforcing Steel				Lbs.	0.04	
7	Structural Steel	8,504		8,504	Cu. Yds.	15.80	131,812.00
8	Concrete Structures—Class "A," Concrete	804.8		804.8	Cu. Yds.	14.50	11,669.60
9	Concrete Structures—Class "B," Concrete				Sq. Ft.	0.24	
10	Portland Cement Concrete Pavement—8 Inch				Sq. Ft.	0.08	
11	Portland Cement Concrete Pavement—6 Inch				Sq. Ft.	0.14	
12	Asphalt Concrete				Lin. Ft.	0.82	
13	Penetration Oil Macadam Pavement				Lin. Ft.	0.80	
14	Concrete Curb—6 Inch				Lin. Ft.	1.00	
15	Concrete Curb—12 Inch				Lin. Ft.	0.25	
16	Concrete Curb—6 Inch with Guard				Sq. Ft.	0.13	
17	Concrete Gutters				Each	19.00	
18	Concrete Sidewalks	70	28	98	Lin. Ft.	1.30	127.40
19	Fill Protectors	136		136	Lin. Ft.	2.00	272.00
20	Corrugated Metal Pipe Culvert—8 Inch	438		438	Lin. Ft.	3.00	1,314.00
21	Corrugated Metal Pipe Culvert—12 Inch				Lin. Ft.	1.20	57.60
22	Corrugated Metal Pipe Culvert—18 Inch		45	48	Lin. Ft.	1.80	89.50
23	Reinforced Concrete Pipe Culvert—10 Inch "S"	247	306	553	Lin. Ft.	1.80	711.00
24	Reinforced Concrete Pipe Culvert—12 Inch "S"	395		395	Lin. Ft.	1.80	711.00
25	Reinforced Concrete Pipe Culvert—15 Inch "S"				Lin. Ft.	2.00	
26	Reinforced Concrete Pipe Culvert—18 Inch "S"	1,324	2	1,326	Lin. Ft.	4.40	5,834.40
27	Reinforced Concrete Pipe Culvert—24 Inch "X"	579		579	Lin. Ft.	8.80	4,921.50
28	Reinforced Concrete Pipe Culvert—36 Inch "X"	205	10	215	Lin. Ft.	1.00	215.00
29	Vitrified Pipe Sewers—6 Inch	57		57	Lin. Ft.	1.20	68.40
30	Vitrified Pipe Sewers—8 Inch	6	1	7	Each	90.00	630.00
31	Manholes—Standard Tops	2		2	Each	100.00	200.00
32	Manholes—Inlet Tops	3		3	Each	90.00	270.00
33	Manholes—Grating Tops				Each	75.00	
34	Storm Water Inlets—34 Inch Openings		2	2	Each	100.00	200.00
35	Storm Water Inlets—"B,"	3		3	Each	80.00	240.00
36	Storm Water Inlets—"C,"	1		1	Each	24.00	24.00
37	Lamp Holes—6 Inch				Each	26.00	
38	Lamp Holes—8 Inch				Each	36.00	
39	Lamp Holes—12 Inch	2		2	Each	30.00	72.00
40	Hand Hole		1	1	Each	30.00	30.00
41	Undertanks—8 In. Peri. Corrug. Metal Pipe	1,626		1,626	Lin. Ft.	1.40	2,276.40
42	Piping Cast Iron—6 Inch	53		53	Lin. Ft.	1.80	95.40
43	Guard Rail				Lin. Ft.	0.80	
44	Pipe Hand Rail	126		126	Cu. Yds.	5.00	630.00
45	Riprap				Lbs.	0.13	
46	Metal Gribbing	266		266	Cu. Yds.	3.00	798.00
47	Stone or Gravel for Foundations	248		354	Lin. Ft.	323.00	115,050.00
48	Tunnel Construction—Type "A,"		106		Lin. Ft.	400.00	
49	Tunnel Construction—Type "B,"				Lin. Ft.	40.00	
50	Cross Adits				Lump Sum		
51	Ventilation Buildings—West and East Bldgs., Complete	33%	2%	35%	Lump Sum	\$40,000.00	119,000.00
52	Ventilation Equipment—Furn. and Install. Complete				Lump Sum	160,000.00	
53	Mechanical Equipment—Furn. and Install. Complete				Lump Sum	60,000.00	
54	Electrical Equipment—Furn. and Install. Complete	3 1/2%		3 1/2%	Lump Sum	210,000.00	7,350.00
55	Carbon Monoxide Detectors and Recorders— Furnishing and Installing Complete				Lump Sum		

Estimate Made by C. E. RIGGS

Checked by A. S. GELSTON

Approved J. W. BARKLEY
Chief Asst. Engr.

Approved

Approved

Total Value of Work Done to Date
Deductions—25% of Work Done
Deduction—\$100,000
Deduction—10% of Work Done

Total Due to Date
Previous Payments

Balance Due on This Estimate

This Estimate Approved WALLACE B. BOGGS
District Engineer, Joint Highway District No. 13
of the State of California

758,360.01
100,000.00
658,360.01
613,894.27
44,465.74

Filed With the Board of Directors of Joint Highway District No. 13 of the State of California at Meeting Held April 4th, 1935.

HARRY M. STOW, Secretary
By L. V. EATON, Assistant Secretary

JOINT HIGHWAY DISTRICT NO. 13
OF THE STATE OF CALIFORNIA
1448 Webster Street
Oakland, Calif.

Estimate of Work

From March 1, 1935 to March 31, 1935

Estimate No. Ten
Contractor—Six Companies of California, Inc.
Street—155 Sansome Street
City—San Francisco, Calif.

No.	Items	Total Quantities By Estimate	Estimate This Month	Total Quantities By Estimate To Date	Units	Contract Prices	Amounts at Contract Prices
1	Grading	733,119	301	733,420	Cu. Yds.	\$	242,098.60
2	Overhaul	2,230,898	46,600	2,277,498	Sq. Yds.	0.005	11,387.14
3	Structural Excavation—Class 'A'	32,834	785	33,619	Cu. Yds.	1.20	40,342.80
4	Structural Excavation—Class 'B'	137		137	Cu. Yds.	2.00	274.00
5	Shoulders				Sq. Ft.	0.035	
6	Reinforcing Steel	1,523,915	64,000	1,587,915	Lbs.	0.04	63,516.60
7	Structural Steel				Lbs.	0.05	
8	Concrete Structures—Class 'A'	8,504	326	8,830	Cu. Yds.	15.50	136,865.00
9	Concrete Structures—Class 'B'	804.8		804.8	Cu. Yds.	14.50	11,669.60
10	Portland Cement Concrete Pavement—8 Inch				Sq. Ft.	0.24	
11	Portland Cement Concrete Pavement—6 Inch				Sq. Ft.	0.18	
12	Asphalt Concrete				Sq. Ft.	0.08	
13	Penetration Oil Macadam Pavement				Sq. Ft.	0.14	
14	Concrete Curb—12 Inch				Lin. Ft.	0.52	
15	Concrete Curb—6 Inch with Guard				Lin. Ft.	0.80	
16	Concrete Entrances				Lin. Ft.	1.00	
17	Concrete Sidewalks				Sq. Ft.	0.23	
18	Manholes—Standard Tops				Sq. Ft.	0.13	
19	Manholes—Grating Tops				Each	19.00	
20	Corrugated Metal Pipe Culvert—8 Inch	98		98	Lin. Ft.	1.30	127.40
21	Corrugated Metal Pipe Culvert—12 Inch	136		136	Lin. Ft.	2.00	272.00
22	Corrugated Metal Pipe Culvert—18 Inch	438		438	Lin. Ft.	3.00	1,314.00
23	Reinforced Concrete Pipe Culvert—10 Inch 'IS'	48		48	Lin. Ft.	1.20	57.60
24	Reinforced Concrete Pipe Culvert—12 Inch 'IS'	553		553	Lin. Ft.	1.50	829.50
25	Reinforced Concrete Pipe Culvert—14 Inch 'IS'	395		395	Lin. Ft.	1.80	711.00
26	Reinforced Concrete Pipe Culvert—18 Inch 'IS'				Lin. Ft.	2.00	
27	Reinforced Concrete Pipe Culvert—24 Inch 'X'	1,326		1,326	Lin. Ft.	4.40	5,834.40
28	Reinforced Concrete Pipe Culvert—36 Inch 'X'	579		579	Lin. Ft.	8.00	4,632.00
29	Reinforced Concrete Pipe Culvert—48 Inch 'X'	215		215	Lin. Ft.	1.50	322.50
30	Victrolite Pipe Saver—8 Inch	57		57	Each	1.20	68.40
31	Victrolite Pipe Saver—12 Inch	7		7	Each	90.00	630.00
32	Manholes—Standard Tops	2		2	Each	100.00	200.00
33	Manholes—Grating Tops	3		3	Each	90.00	270.00
34	Storm Water Inlets—34 Inch Openings	2		2	Each	75.00	
35	Storm Water Inlets—'B'	2		2	Each	100.00	200.00
36	Storm Water Inlets—'C'	3		3	Each	80.00	240.00
37	Storm Water Inlets—'D'	1		1	Each	24.00	24.00
38	Lamp Holes—6 Inch				Each	26.00	
39	Lamp Holes—8 Inch				Each	36.00	
40	Lamp Holes—12 Inch				Each	30.00	
41	Underdrains—8 In. Perf. Corrug. Metal Pipe	1,626		1,626	Lin. Ft.	1.40	2,276.40
42	Piping Cast Iron—6 Inch				Lin. Ft.	1.50	
43	Guard Rail	53		53	Lin. Ft.	0.80	42.40
44	Pipe Hand Rail	126		126	Lin. Ft.	3.00	380.00
45	Riprap				Cu. Yds.	5.00	630.00
46	Metal Gribbing				Lbs.	0.13	
47	Stone or Gravel for Foundations	266		266	Cu. Yds.	3.00	798.00
48	Tunnel Construction—Type 'A'	354	118	472	Lin. Ft.	325.00	153,400.00
49	Tunnel Construction—Type 'B'				Lin. Ft.	400.00	
50	Cross Adits				Lin. Ft.	40.00	
51	Ventilation Buildings—West and East Bldgs., Complete	35%	3%	38%	Lump Sum		129,200.00
52	Ventilation Equipment—Furn. and Install. Complete				Lump Sum	340,000.00	
53	Mechanical Equipment—Furn. and Install. Complete				Lump Sum	160,000.00	
54	Electrical Equipment—Furn. and Install. Complete	3½%	1½%	5%	Lump Sum	60,000.00	
55	Carbon Monoxide Detectors and Recorders—Furnishing and Installing Complete				Lump Sum	210,000.00	10,500.00

Estimate Made by C. E. RIGGS

Checked by A. S. GEILSTON

Approved J. W. BARKLEY
Chief Asst. Engr.

Approved
Approved

Total Value of Work Done to Date
Deductions—35% of Work Done
Deduction—\$100,000

Deduction—10% of Work Done
Total Due to Date
Previous Payments

Balance Due on This Estimate

This Estimate Approved

WALLACE B. BOGGS

District Engineer, Joint Highway District No. 13
of the State of California

Filed With the Board of Directors of Joint Highway District No. 13 of the State of California at Meeting Held May 9, 1935.

HARRY M. STOW, Secretary
By L. V. EATON, Assistant Secretary

JOINT HIGHWAY DISTRICT NO. 13 Estimate No. Eleven
OF THE STATE OF CALIFORNIA Contractor—Six Companies of California, Inc.
Street—153 Sausome Street
City—San Francisco, Calif.
1448 Webster Street
Oakland, Calif.

Estimate of Work

From April 1, 1935 to April 30, 1935

No.	Items	Total Quantities by Last Estimate	Estimate This Month	Total Quantities To Date	Units	Contract Price	Amounts at Contract Price
1	Grading	733,420	49,280	733,420	Cu Yds. \$	0.33	242,028.60
2	Overhaul	2,277,428	332	2,276,708	Sq. Yds.	0.006	11,633.54
3	Structural Excavation—Class "A"	33,619	126	33,951	Cu Yds.	1.90	40,741.20
4	Structural Excavation—Class "B"	137		263	Cu Yds.	2.00	526.00
5	Shoulders				Sq. Ft.	0.035	
6	Reinforcing Steel	1,587,915	73,450	1,661,365	Lbs.	0.04	66,454.60
7	Structural Steel				Lbs.	0.05	
8	Concrete Structures—Class "A"	8,800	306	9,136	Cu Yds.	13.50	141,608.00
9	Concrete Structures—Class "B"	804.8	170.2	975.0	Cu Yds.	14.50	14,137.50
10	Portland Cement Concrete Pavement—8 Inch				Sq. Ft.	0.24	
11	Portland Cement Concrete Pavement—6 Inch				Sq. Ft.	0.18	
12	Asphalt Concrete				Sq. Ft.	0.08	
13	Penetration Oil Macadam Pavement				Sq. Ft.	0.14	
14	Concrete Cuts—6 Inch				Lin. Ft.	0.52	
15	Concrete Cuts—12 Inch				Lin. Ft.	0.80	
16	Concrete Cuts—8 Inch with Guard				Lin. Ft.	1.00	
17	Concrete Gutters				Lin. Ft.	0.80	
18	Cement Sidewalks				Sq. Ft.	0.25	
19	Full Protectors				Sq. Ft.	0.13	
20	Corrugated Metal Pipe Culvert—8 Inch	98		98	Each	19.00	1,872.40
21	Corrugated Metal Pipe Culvert—12 Inch	136		136	Lin. Ft.	1.30	177.20
22	Corrugated Metal Pipe Culvert—18 Inch	438		438	Lin. Ft.	2.00	876.00
23	Reinforced Concrete Pipe Culvert—10 Inch "S"	48		48	Lin. Ft.	3.00	1,314.00
24	Reinforced Concrete Pipe Culvert—12 Inch "S"	553		553	Lin. Ft.	1.20	663.60
25	Reinforced Concrete Pipe Culvert—15 Inch "S"	395		395	Lin. Ft.	1.50	592.50
26	Reinforced Concrete Pipe Culvert—18 Inch "S"				Lin. Ft.	1.80	
27	Reinforced Concrete Pipe Culvert—24 Inch "X"	1,326		1,326	Lin. Ft.	2.00	2,652.00
28	Reinforced Concrete Pipe Culvert—36 Inch "X"	579		579	Lin. Ft.	4.40	2,547.60
29	Reinforced Concrete Pipe Culvert—48 Inch "X"	215		215	Lin. Ft.	8.50	1,827.50
30	Vitrified Pipe Sewers—8 Inch	57		57	Lin. Ft.	1.00	57.00
31	Vitrified Pipe Sewers—12 Inch	7		7	Each	90.00	630.00
32	Manholes—Inlet Tops	2		2	Each	100.00	200.00
33	Manholes—Inlet Tops	3		3	Each	90.00	270.00
34	Storm Water Inlets—34 Inch Openings				Each	75.00	
35	Storm Water Inlets—18 Inch	2		2	Each	100.00	200.00
36	Storm Water Inlets—"B"	3		3	Each	80.00	240.00
37	Storm Water Inlets—"C"	1		1	Each	24.00	24.00
38	Lamp Holes—6 Inch				Each	26.00	
39	Lamp Holes—8 Inch				Each	30.00	
40	Lamp Holes—12 Inch	2		2	Each	36.00	72.00
41	Hand Hole	1		1	Lin. Ft.	1.40	1.40
42	Underdrains—8 In. Perf. Corrug. Metal Pipe	1,626		1,626	Lin. Ft.	1.80	2,926.80
43	Piping Cast Iron—6 Inch				Lin. Ft.	1.50	
44	Guard Rail	53		53	Lin. Ft.	0.80	42.40
45	Riprap	126		126	Cu Yds.	3.00	378.00
46	Metal Cribbing				Lbs.	0.13	
47	Stone or Gravel for Foundations	266		266	Cu Yds.	3.00	798.00
48	Tunnel Construction—Type "A"	472	124	596	Lin. Ft.	325.00	193,700.00
49	Tunnel Construction—Type "B"				Lin. Ft.	400.00	
50	Cross Adits				Lin. Ft.	40.00	
51	Ventilation Buildings—West and East Bldgs., Complete	38%	2%	40%	Lump Sum		136,000.00
52	Ventilation Equipment—Furn. and Install. Complete				Lump Sum	340,000.00	
53	Mechanical Equipment—Furn. and Install. Complete				Lump Sum	180,000.00	
54	Electrical Equipment—Furn. and Install. Complete				Lump Sum	60,000.00	
55	Carbon Monoxide Detectors and Records—Furnishing and Installing Complete	5%	0.8%	5.8%	Lump Sum	210,000.00	12,180.00

Estimate Made by C. E. RIGGS

Checked by A. S. GEILSTON

Approved J. W. BARKLEY
Chief Asst. Engr.

Approved

Approved

Total Value of Work Done to Date

Deductions—25% of Work Done

Deduction—\$100,000

Deduction—10% of Work Done

Total Due to Date

Previous Payments

Balance Due on This Estimate

This Estimate Approved WALLACE B. BOGGS

District Engineer, Joint Highway District No. 13
of the State of California

Filed With the Board of Directors of Joint Highway District No. 13 of the State of California at Meeting Held
June 10, 1935.

HARRY M. STOW, Secretary
By L. V. EATON, Assistant Secretary

JOINT HIGHWAY DISTRICT NO. 13
OF THE STATE OF CALIFORNIA
1448 Webster Street
Oakland, Calif.

Estimate No. Twelve
Contractor—Six Companies of California, Inc.
Street—155 Sanome Street
City—San Francisco, Calif.

Estimate of Work

From May 1, 1935 to May 31, 1935

No.	Items	Total Quantities in Estimate	Estimate This Month	Total Quantities Estimated To Date	Units	Contract Prices	Amounts at Contract Prices
1	Grading	733,420	1,080	734,510	Cu. Yds.	0.33	242,385.30
2	Overhaul	2,326,708	45,840	2,372,548	Sta. Yds.	0.005	11,862.74
3	Structural Excavation—Class "A,"	33,951	1,619	35,570	Cu. Yds.	1.20	42,684.00
4	Structural Excavation—Class "B,"	263	5	268	Cu. Yds.	2.00	536.00
5	Shoulders				Sq. Ft.	0.035	
6	Reinforcing Steel	1,661,365	75,000	1,736,365	Lbs.	0.04	69,454.60
7	Structural Steel				Lbs.	0.05	
8	Concrete Structures—Class "A," Concrete	9,136	315	9,451	Cu. Yds.	15.50	146,490.50
9	Concrete Structures—Class "B," Concrete	975	66	1,041	Cu. Yds.	14.50	15,094.50
10	Portland Cement Concrete Pavement—8 Inch				Sq. Ft.	0.24	
11	Portland Cement Concrete Pavement—8 Inch				Sq. Ft.	0.18	
12	Asphalt Concrete				Sq. Ft.	0.08	
13	Penetration Oil Macadam Pavement				Sq. Ft.	0.14	
14	Concrete Curbs—6 Inch				Lbs. Ft.	0.52	
15	Concrete Curbs—12 Inch				Lbs. Ft.	0.80	
16	Concrete Curbs—6 Inch with Guard				Lbs. Ft.	1.00	
17	Concrete Gutters				Sq. Ft.	0.25	
18	Cement Sidewalks				Sq. Ft.	0.13	
19	Fill Protectors	98		98	Each	18.00	1,764.00
20	Corrugated Metal Pipe Culvert—8 Inch	136		136	Lbs. Ft.	1.30	174.80
21	Corrugated Metal Pipe Culvert—12 Inch	438		438	Lbs. Ft.	2.00	876.00
22	Corrugated Metal Pipe Culvert—18 Inch	48		48	Lbs. Ft.	3.00	144.00
23	Reinforced Concrete Pipe Culvert—10 Inch "S,"	553		553	Lbs. Ft.	1.20	663.60
24	Reinforced Concrete Pipe Culvert—12 Inch "S,"	395		395	Lbs. Ft.	1.50	592.50
25	Reinforced Concrete Pipe Culvert—15 Inch "S,"				Lbs. Ft.	1.80	
26	Reinforced Concrete Pipe Culvert—18 Inch "S,"	1,326		1,326	Lbs. Ft.	2.00	2,652.00
27	Reinforced Concrete Pipe Culvert—24 Inch "X,"	579		579	Lbs. Ft.	4.40	2,547.60
28	Reinforced Concrete Pipe Culvert—36 Inch "X,"	215		215	Lbs. Ft.	8.50	1,827.50
29	Victrolid Pipe Sowers—8 Inch	57		57	Lbs. Ft.	1.00	57.00
30	Victrolid Pipe Sowers—8 Inch	7		7	Each	90.00	630.00
31	Manholes—Standard Tops	2		2	Each	100.00	200.00
32	Manholes—Tuet Tops	3		3	Each	90.00	270.00
33	Manholes—Grating Tops				Each	75.00	
34	Storm Water Inlets—34 Inch Openings	2		2	Each	100.00	200.00
35	Storm Water Inlets—"B,"	3		3	Each	100.00	300.00
36	Storm Water Inlets—"C,"	1		1	Each	80.00	80.00
37	Storm Water Inlets—"D,"	2		2	Each	24.00	48.00
38	Laap Holes—6 Inch				Each	26.00	
39	Laap Holes—12 Inch	1,626		1,626	Each	38.00	61,788.00
40	Hand Hole				Each	30.00	
41	Underdrains—9 In. Perf. Corrug. Metal Pipe	53		53	Lbs. Ft.	1.40	74.20
42	Piping Cast Iron—6 Inch				Lbs. Ft.	1.50	
43	Guard Rail	126		126	Lbs. Ft.	0.80	100.80
44	Pipe Head Ball				Lbs. Ft.	3.00	
45	Extrap				Cu. Yds.	5.00	
46	Metal Gridding	266		266	Lbs.	0.13	34.58
47	Stone or Gravel for Foundations	596		596	Cu. Yds.	3.00	1,788.00
48	Tunnel Construction—Type "A,"		280	280	Lbs. Ft.	325.00	91,000.00
49	Tunnel Construction—Type "B,"				Lbs. Ft.	400.00	
50	Cross Adits				Lbs. Ft.	40.00	
51	Ventilation Buildings—West and East Bldgs., Complete	40%	4.3%	44.3%	Lump Sum		150,620.00
52	Ventilation Equipment—Furn. and Install. Complete		3.2%	3.2%	Lump Sum	340,000.00	
53	Mechanical Equipment—Furn. and Install. Complete				Lump Sum	160,000.00	5,120.00
54	Electrical Equipment—Furn. and Install. Complete	5.5%	1.6%	7.4%	Lump Sum	60,000.00	
55	Carbon Monoxide Detectors and Records— Furnishing and Installing Complete				Lump Sum	210,000.00	15,540.00

Estimate Made by C. E. RIGGS

Checked by A. S. GELSTON

Approved J. W. BARKLEY
Chief Asst. Engr.

Approved

Approved

Total Value of Work Done to Date
Deductions—25% of Work Done
Deduction—\$100,000

Deduction—10% of Work Done
Total Due to Date
Previous Payments

Balance Due on This Estimate

1,004,254.24

100,425.42

903,828.82

778,773.04

125,055.78

This Estimate Approved WALLACE B. BORGS

District Engineer, Joint Highway District No. 13
of the State of California

Filed With the Board of Directors of Joint Highway District No. 13 of the State of California at Meeting Held July 9, 1935.

HARRY M. STOW, Secretary
By L. V. EATON, Assistant Secretary

Estimate No. Thirteen
Contractor—Six Companies of California, Inc.
Street—155 Sansome Street
City—San Francisco, Calif.

Estimate of Work

JOINT HIGHWAY DISTRICT NO. 13
OF THE STATE OF CALIFORNIA
1448 Webster Street
Oakland, Calif.

From June 1, 1935 to June 30, 1935

No.	Items	Total Quantities		Estimate This Month	Total Quantities		Contract Prices	Amounts at Contract Prices
		by Last Estimate	To Date		Estimated To Date	Units		
1	Grading		734,510	25,500	760,010	Cu. Yds.	\$	250,803.30
2	Overhaul		2,372,548	103,700	2,476,248	Sq. Yds.		12,381.24
3	Structural Excavation—Class "A"		35,570	549	36,119	Cu. Yds.	1.30	43,342.80
4	Structural Excavation—Class "B"		268		268	Cu. Yds.	2.00	536.00
5	Shoring					Sq. Ft.	0.035	
6	Reinforcing Steel		1,736,365	66,000	1,802,365	Lbs.	0.04	72,094.60
7	Structural Steel					Lbs.	0.05	
8	Concrete Structures—Class "A"		9,451	296	9,747	Cu. Yds.	14.50	151,078.50
9	Concrete Structures—Class "B"		1,041	187	1,228	Cu. Yds.	15.50	17,806.00
10	Portland Cement Concrete Pavement—8 Inch					Sq. Ft.	0.24	
11	Portland Cement Concrete Pavement—6 Inch					Sq. Ft.	0.08	
12	Asphalt Concrete Pavement—8 Inch					Sq. Ft.	0.18	
13	Penetration Oil Macadam Pavement					Sq. Ft.	0.14	
14	Concrete Curb—8 Inch					Lin. Ft.	0.52	
15	Concrete Curb—12 Inch					Lin. Ft.	0.80	
16	Concrete Curb—6 Inch with Guard					Lin. Ft.	1.00	
17	Concrete Gutters					Sq. Ft.	0.25	
18	Cement Sidewalks					Sq. Ft.	0.13	
19	Full Protection		98		98	Each	19.00	
20	Corrugated Metal Pipe Culvert—8 Inch		136	108	244	Lin. Ft.	1.30	127.40
21	Corrugated Metal Pipe Culvert—18 Inch		438	152	590	Lin. Ft.	2.00	488.00
22	Reinforced Concrete Pipe Culvert—90 Inch "S"		48		48	Lin. Ft.	3.50	1,770.00
23	Reinforced Concrete Pipe Culvert—12 Inch "S"		553		553	Lin. Ft.	1.30	57.60
24	Reinforced Concrete Pipe Culvert—18 Inch "S"		395		395	Lin. Ft.	1.50	829.50
25	Reinforced Concrete Pipe Culvert—18 Inch "S"					Lin. Ft.	1.80	711.00
26	Reinforced Concrete Pipe Culvert—24 Inch "X"		1,326		1,326	Lin. Ft.	2.00	
27	Reinforced Concrete Pipe Culvert—36 Inch "X"		579		579	Lin. Ft.	4.40	5,834.40
28	Reinforced Concrete Pipe Culvert—36 Inch "X"		215		215	Lin. Ft.	8.50	4,921.50
29	Vitrified Pipe Sewers—8 Inch		77	20	97	Lin. Ft.	1.00	215.00
30	Vitrified Pipe Sewers—8 Inch		7		7	Lin. Ft.	1.20	92.40
31	Manholes—Standard Tops		2	1	3	Each	80.00	240.00
32	Manholes—Inlet Tops		3		3	Each	90.00	270.00
33	Manholes—Grating Tops					Each	75.00	
34	Storm Water Inlets—34 Inch Openings					Each	100.00	
35	Storm Water Inlets—34 Inch Openings					Each	100.00	
36	Storm Water Inlets—36 Inch "G"		3		3	Each	24.00	72.00
37	Lamp Holes—8 Inch		1		1	Each	36.00	36.00
38	Lamp Holes—12 Inch		2		2	Each	30.00	60.00
39	Lamp Holes—12 Inch					Each	24.00	
40	Hand Hole		1		1	Each	28.00	28.00
41	Underdrains—8 In. Perf. Corrug. Metal Pipe		1,626		1,626	Lin. Ft.	1.40	2,276.40
42	Piping Cast Iron—6 Inch					Lin. Ft.	1.50	
43	Guard Rail		53		53	Lin. Ft.	0.80	42.40
44	Pipe Hand Rail		126		126	Lin. Ft.	3.00	630.00
45	Riprap					Cu. Yds.	5.00	
46	Metal Cribbing					Lbs.	0.13	
47	Stone or Gravel for Foundations		266		266	Cu. Yds.	3.00	798.00
48	Tunnel Construction—Type "A"		876	190	1,066	Lin. Ft.	325.00	346,450.00
49	Tunnel Construction—Type "A"					Lin. Ft.	400.00	
50	Tunnel Construction—Type "B"					Lin. Ft.	40.00	
51	Cross Adits					Lin. Ft.	40.00	
52	Ventilation Buildings—West and East Bldgs., Complete		44.3%	2.1%	46.4%	Lump Sum		157,760.00
53	Ventilation Equipment—Furn. and Install. Complete		3.2%	3.9%	7.1%	Lump Sum		11,360.00
54	Mechanical Equipment—Furn. and Install. Complete			6.7%	6.7%	Lump Sum		4,020.00
55	Electrical Equipment—Furn. and Install. Complete		7.4%	1.2%	8.6%	Lump Sum		18,060.00
56	Carbon Monoxide Detectors and Recorders—Furnishing and Installing Complete					Lump Sum		

Estimate Made by C. E. RIGGS

Checked by A. S. GELSTON

Approved J. W. BARKLEY
Chief Asst. Engr.

Approved

Approved

Total Value of Work Done to Date
Deductions—25% of Work Done
Deduction—\$100,000
Deduction—10% of Work Done

Total Due to Date

Previous Payments

Balance Due on This Estimate

This Estimate Approved

WALLACE B. BOGGS

District Engineer, Joint Highway District No. 13
of the State of California

Filed With the Board of Directors of Joint Highway District No. 13 of the State of California at Meeting Held August 8, 1935.

HARRY M. STOW, Secretary
By L. V. EATON, Assistant Secretary

Estimate No. Fourteen
Contractor—Six Companies of California, Inc.
Street—145 Sansome Street
City—San Francisco, Calif.

JOINT HIGHWAY DISTRICT NO. 13
OF THE STATE OF CALIFORNIA
1448 Webster Street
Oakland, Calif.

Estimate of Work

From July 1, 1935 to July 31, 1935

No.	Items	Total Quantity by Last Estimate	Estimate This Month	Total Quantity Estimated To Date	Units	Contract Price	Amounts at Contract Prices
1	Grading	760,010	20,605	780,615	Cu. Yds. \$	0.33	257,602.95
2	Overhaul	2,476,248	108,390	2,584,638	Sta. Yds.	0.005	12,923.19
3	Structural Excavation—Class "A,"	36,119	49	36,168	Cu. Yds.	1.20	43,401.60
4	Structural Excavation—Class "B,"	268		268	Cu. Yds.	2.00	536.00
5	Shrinkers				Sq. Ft.	0.035	
6	Reinforcing Steel	1,802,365	43,412	1,845,777	Lbs.	0.04	73,831.08
7	Structural Steel				Lbs.	0.05	
8	Concrete Structures—Class "A," Concrete	9,747	106	9,853	Cu. Yds.	15.50	152,721.50
9	Concrete Structures—Class "B," Concrete	1,228		1,228	Cu. Yds.	14.50	17,806.00
10	Portland Cement Concrete Pavement—8 Inch				Sq. Ft.	0.24	
11	Portland Cement Concrete Pavement—6 Inch				Sq. Ft.	0.18	
12	Asphalt Concrete				Sq. Ft.	0.08	
13	Penetration Oil Macadam Pavement				Sq. Ft.	0.14	
14	Concrete Curb—6 Inch				Lbs. Ft.	0.52	
15	Concrete Curb—12 Inch				Lbs. Ft.	0.80	
16	Concrete Curb—6 Inch with Guard				Lbs. Ft.	1.00	
17	Concrete Gutters				Sq. Ft.	0.25	
18	Cement Sidewalks				Sq. Ft.	0.13	
19	Fill Protectors				Each	19.00	
20	Corrugated Metal Pipe Culvert—8 Inch	98		98	Lbs. Ft.	1.30	127.40
21	Corrugated Metal Pipe Culvert—12 Inch	244		244	Lbs. Ft.	2.00	488.00
22	Corrugated Metal Pipe Culvert—18 Inch	590		590	Lbs. Ft.	3.00	1,770.00
23	Reinforced Concrete Pipe Culvert—10 Inch "S,"	48		48	Lbs. Ft.	1.20	57.60
24	Reinforced Concrete Pipe Culvert—12 Inch "S,"	553		553	Lbs. Ft.	1.50	829.50
25	Reinforced Concrete Pipe Culvert—15 Inch "S,"	395		395	Lbs. Ft.	1.80	711.00
26	Reinforced Concrete Pipe Culvert—18 Inch "S,"				Lbs. Ft.	2.00	
27	Reinforced Concrete Pipe Culvert—24 Inch "X,"	1,326		1,326	Lbs. Ft.	4.40	5,834.40
28	Reinforced Concrete Pipe Culvert—36 Inch "X,"	579		579	Lbs. Ft.	8.50	4,921.50
29	Vitrified Pipe Sewers—6 Inch	215		215	Lbs. Ft.	1.00	215.00
30	Vitrified Pipe Sewers—8 Inch	77	138	215	Lbs. Ft.	1.20	258.00
31	Manholes—Standard Tops	2		2	Each	90.00	180.00
32	Manholes—Bulet Tops	2	1	3	Each	100.00	300.00
33	Manholes—Grating Tops	3		3	Each	90.00	270.00
34	Storm Water Inlets—34 Inch Openings	2		2	Each	75.00	150.00
35	Storm Water Inlets—"B,"	3		3	Each	100.00	300.00
36	Storm Water Inlets—"C,"	3		3	Each	80.00	240.00
37	Lamp Holes—6 Inch	1		1	Each	24.00	24.00
38	Lamp Holes—8 Inch		1	1	Each	26.00	26.00
39	Lamp Holes—12 Inch				Each	38.00	76.00
40	Hand Hole	2		2	Each	30.00	60.00
41	Undersinks—8 In. Peri. Corrug. Metal Pipe	1,626		1,626	Lbs. Ft.	1.40	2,276.40
42	Piping Cast Iron—6 Inch				Lbs. Ft.	1.50	
43	Guard Rail			53	Lbs. Ft.	0.80	42.40
44	Pipe Hand Rail	53		53	Lbs. Ft.	2.00	106.00
45	Riprap	126		126	Cu. Yds.	8.00	1,008.00
46	Metal Gribbing				Lbs.	0.13	
47	Stone or Gravel for Foundations	266		266	Cu. Yds.	3.00	798.00
48	Tunnel Construction—Type "A,"	1,066	293	1,359	Lbs. Ft.	325.00	441,675.00
49	Tunnel Construction—Type "B,"				Lbs. Ft.	400.00	
50	Cross Adits		21	21	Lbs. Ft.	40.00	840.00
51	Ventilation Buildings—West and East Bldgs., Complete				Lump Sum		183,600.00
52	Ventilation Equipment—Furn. and Install.	46.4%	7.6%	54%	Lump Sum		1,244,388.52
53	Mechanical Equipment—Furn. and Install.	7.1%	2.2%	9.3%	Lump Sum		14,880.00
54	Electrical Equipment—Furn. and Install.	6.7%		6.7%	Lump Sum		4,020.00
55	Complete Carbon Monoxide Detectors and Recorders—Furnishing and Installing Complete	8.6%	0.7%	9.3%	Lump Sum		19,530.00
					Lump Sum		15,000.00

Estimate Made by C. E. RIGGS

Checked by A. S. GELSTON

Approved J. W. BARKLEY
Chief Asst. Engr.

Approved

Approved

Total Value of Work Done to Date
Deductions—25% of Work Done
Deduction—\$100,000.

Deduction—10% of Work Done

Total Due to Date

Previous Payments

Balance Due on This Estimate

This Estimate Approved WALLACE B. BOGGS

District Engineer, Joint Highway District No. 13
of the State of California

Filed With the Board of Directors of Joint Highway District No. 13 of the State of California at Meeting Held
September 10, 1935.

HARRY M. STOW, Secretary
By L. V. EATON, Assistant Secretary

Estimate of Work
From August 1, 1935 to August 31, 1935

JOINT HIGHWAY DISTRICT NO. 13
OF THE STATE OF CALIFORNIA
1448 Webster Street
Oakland, Calif.

Estimate No. Fifteen
Contractor—Six Companies of California, Inc.
Street—155 Sansome Street
City—San Francisco, Calif.

No.	Items	Total Quantities Estimate	Estimate This Month	Total Quantities To Date	Units	Contract Prices	Amounts at Contract Prices
1	Grading	780,615	.....	780,615	Cu. Yds.	\$	257,602.95
2	Overhaul	2,584,638	.....	2,584,638	Sq. Yds.	0.005	12,923.19
3	Structural Excavation—Class "A,"	38,168	109	38,277	Cu. Yds.	1.20	45,932.40
4	Structural Excavation—Class "B,"	268	.....	268	Cu. Yds.	2.00	536.00
5	Shoulders	1,845,777	.....	2,093,153	Sq. Ft.	0.035	83,726.12
6	Reinforcing Steel	.....	247,376	.....	Lbs.	0.04	163,904.00
7	Structural Steel	.....	.....	.....	Cu. Yds.	0.05	17,806.00
8	Concrete Structures—Class "A," Concrete	9,853	715	10,568	Cu. Yds.	13.50	4,440.60
9	Concrete Structures—Class "B," Concrete	1,228	.....	1,228	Cu. Yds.	14.50	.....
10	Portland Cement Concrete Pavement—3 Inch	.....	.....	24,670	Sq. Ft.	0.24	.....
11	Portland Cement Concrete Pavement—6 Inch	.....	24,670	.....	Sq. Ft.	0.18	.....
12	Asphalt Concrete	.....	.....	24,670	Sq. Ft.	0.08	.....
13	Penetration Oil Macadam Pavement	.....	.....	2,240	Sq. Ft.	0.14	.....
14	Concrete Curb—6 Inch	.....	2,240	.....	Lun. Ft.	0.52	.....
15	Concrete Curb—12 Inch	.....	40	40	Lun. Ft.	0.80	.....
16	Concrete Curb—6 Inch with Guard	.....	2,280	2,280	Lun. Ft.	1.00	400.00
17	Concrete Gutters	.....	.....	.....	Sq. Ft.	0.25	570.00
18	Cement Sidewalks	.....	.....	.....	Sq. Ft.	0.13	.....
19	Fill Protectors	.....	.....	.....	Each	19.00	.....
20	Corrugated Metal Pipe Culvert—8 Inch	98	.....	98	Lun. Ft.	1.30	127.40
21	Corrugated Metal Pipe Culvert—12 Inch	244	.....	244	Lun. Ft.	1.30	488.00
22	Corrugated Metal Pipe Culvert—18 Inch	590	.....	590	Lun. Ft.	2.00	1,770.00
23	Reinforced Concrete Pipe Culvert—10 Inch "S"	48	.....	48	Lun. Ft.	3.00	57.60
24	Reinforced Concrete Pipe Culvert—12 Inch "S"	553	200	753	Lun. Ft.	1.20	1,129.50
25	Reinforced Concrete Pipe Culvert—13 Inch "S"	395	.....	395	Lun. Ft.	1.50	711.00
26	Reinforced Concrete Pipe Culvert—15 Inch "S"	.....	.....	.....	Lun. Ft.	1.80	.....
27	Reinforced Concrete Pipe Culvert—18 Inch "S"	1,326	.....	1,326	Lun. Ft.	2.00	5,834.40
28	Reinforced Concrete Pipe Culvert—24 Inch "X"	579	.....	579	Lun. Ft.	4.40	4,921.50
29	Reinforced Concrete Pipe Culvert—36 Inch "X"	215	17	232	Lun. Ft.	8.50	232.00
30	Vitrified Pipe Sewers—8 Inch	215	.....	215	Lun. Ft.	1.00	258.00
31	Vitrified Pipe Sewers—12 Inch	10	.....	10	Lun. Ft.	1.20	900.00
32	Manholes—Standard Tops	3	1	4	Each	90.00	400.00
33	Manholes—Inlet Tops	3	.....	3	Each	100.00	300.00
34	Manholes—Grating Tops	.....	.....	.....	Each	270.00	270.00
35	Storm Water Inlets—34 Inch Openings	2	1	3	Each	90.00	75.00
36	Storm Water Inlets—"B"	3	.....	3	Each	75.00	232.00
37	Storm Water Inlets—"C"	.....	.....	.....	Each	100.00	200.00
38	Lamp Holes—6 Inch	1	1	2	Each	80.00	240.00
39	Lamp Holes—8 Inch	1	.....	1	Each	48.00	48.00
40	Lamp Holes—12 Inch	2	1	3	Each	26.00	78.00
41	Hand Hole	1	.....	1	Each	36.00	108.00
42	Underdrains—8 In. Perf. Corrug. Metal Pipe	1,626	402	2,028	Each	30.00	60,840.00
43	Piping Cast Iron—6 Inch	53	.....	53	Lun. Ft.	1.40	2,839.20
44	Guard Rail	126	.....	126	Lun. Ft.	1.50	1,890.00
45	Pipe Hand Rail	.....	.....	53	Lun. Ft.	1.40	74.20
46	Bitrap	126	.....	126	Lun. Ft.	0.80	100.80
47	Metal Cribbing	266	.....	266	Lun. Ft.	3.00	798.00
48	Stone or Gravel for Foundations	.....	.....	.....	Cu. Yds.	3.00	798.00
49	Tunnel Construction—Type "A,"	1,359	211	1,570	Lun. Ft.	325.00	510,250.00
50	Tunnel Construction—Type "B,"	.....	.....	.....	Lun. Ft.	400.00	.....
51	Cross Adits	21	38	59	Lun. Ft.	40.00	2,360.00
52	Ventilation Buildings—West and East Bldgs., Complete	54%	7.3%	61.3%	Lump Sum	.....	208,420.00
53	Ventilation Equipment—Furn. and Install.	9.3%	1.2%	10.5%	Lump Sum	.....	16,800.00
54	Mechanical Equipment—Furn. and Install.	6.7%	.....	6.7%	Lump Sum	.....	4,020.00
55	Electrical Equipment—Furn. and Install.	9.3%	1.1%	10.4%	Lump Sum	.....	21,840.00
56	Complete Carbon Monoxide Detectors and Recorders—Furnishing and Installing Complete	.....	.....	.....	Lump Sum	.....	15,000.00

Estimate Made by C. E. RIGGS

Checked by A. S. GELSTON

Approved J. W. BARKLEY
Chief Asst. Engr.

Approved

Approved

Total Value of Work Done to Date
Deductions—25% of Work Done
Deduction—\$100,000
Deduction—10% of Work Done
Total Due to Date
Previous Payments
Balance Due on This Estimate

This Estimate Approved WALLACE B. BOGGS
District Engineer, Joint Highway District No. 13
of the State of California

HARRY M. STOW, Secretary
By L. V. EATON, Assistant Secretary

JOINT HIGHWAY DISTRICT NO. 13
OF THE STATE OF CALIFORNIA
1448 Webster Street
Oakland, Calif.

Estimate No. Sixteen
Contractor—Six Companies of California, Inc.
Street—155 Sansome Street
City—San Francisco, Calif.

Estimate of Work

From September 1, 1935 to September 30, 1935

No.	Items	Total Quantities Estimate	Estimate This Month	Total Quantities To Date	Units	Contract Price	Amounts at Contract Prices
1	Grading	780,615	3,600	784,215	Cu. Yds. \$	0.33	258,790.95
2	Overhaul	2,584,638		2,584,638	Cu. Yds.	0.0065	12,923.19
3	Structural Excavation—Class "A," #38,277-2,000	36,277	61	36,338	Cu. Yds.	1.20	43,605.60
4	Structural Excavation—Class "B,"	268		268	Cu. Yds.	2.00	536.00
5	Shoulders				Sq. Ft.	0.0035	
6	Reinforcing Steel	2,093,153	128,369	2,221,522	Lbs.	0.04	88,860.88
7	Structural Steel				Lbs.	0.05	
8	Concrete Structures—Class "A," Concrete	10,568	233	10,801	Cu. Yds.	15.50	167,415.50
9	Concrete Structures—Class "B," Concrete	1,228		1,228	Cu. Yds.	14.50	17,806.00
10	Portland Cement Concrete Pavement—8 Inch				Sq. Ft.	0.24	
11	Portland Cement Concrete Pavement—6 Inch	24,670	6,431	31,101	Sq. Ft.	0.18	5,598.18
12	Asphalt Concrete		40,000	40,000	Sq. Ft.	0.08	3,290.00
13	Penetration Oil Macadam Pavement	2,240	1,012	3,252	Sq. Ft.	0.14	1,691.04
14	Concrete Curb—6 Inch				Lbs. Ft.	0.52	
15	Concrete Curb—12 Inch	40		40	Lbs. Ft.	0.80	40.00
16	Concrete Curb—6 Inch with Guard	2,280		2,280	Sq. Ft.	0.25	958.00
17	Concrete Gutters		1,552	3,832	Sq. Ft.	0.13	
18	Cement Sidewalks				Each	19.00	
19	Fill Protectors	98		98	Lbs. Ft.	1.30	127.40
20	Corrugated Metal Pipe Culvert—8 Inch	244	94	338	Lbs. Ft.	2.00	676.00
21	Corrugated Metal Pipe Culvert—12 Inch	590		590	Lbs. Ft.	3.00	1,770.00
22	Corrugated Metal Pipe Culvert—18 Inch	48	50	98	Lbs. Ft.	1.20	117.60
23	Reinforced Concrete Pipe Culvert—10 Inch "S,"	753		753	Lbs. Ft.	1.50	1,129.50
24	Reinforced Concrete Pipe Culvert—12 Inch "S,"	395		395	Lbs. Ft.	1.80	711.00
25	Reinforced Concrete Pipe Culvert—14 Inch "S,"				Lbs. Ft.	2.00	
26	Reinforced Concrete Pipe Culvert—16 Inch "S,"	1,325		1,326	Lbs. Ft.	4.40	5,834.40
27	Reinforced Concrete Pipe Culvert—24 Inch "X,"	579		579	Lbs. Ft.	8.50	4,921.50
28	Reinforced Concrete Pipe Culvert—38 Inch "X,"	232		232	Lbs. Ft.	1.00	232.00
29	Vitrified Pipe Sewers—6 Inch	215		215	Lbs. Ft.	1.20	258.00
30	Vitrified Pipe Sewers—8 Inch	10		10	Each	90.00	900.00
31	Manholes—Standard Tops	4		4	Each	100.00	400.00
32	Manholes—Inlet Tops	3		3	Each	90.00	270.00
33	Manholes—Grating Tops	2		2	Each	75.00	150.00
34	Storm Water Inlets—34 Inch Openings	1		1	Each	100.00	100.00
35	Storm Water Inlets—"B,"	2	2	4	Each	80.00	320.00
36	Storm Water Inlets—"C,"	2		2	Each	24.00	48.00
37	Lamp Holes—6 Inch	3		3	Each	26.00	78.00
38	Lamp Holes—8 Inch	1		1	Each	38.00	38.00
39	Lamp Holes—12 Inch	3		3	Each	30.00	90.00
40	Hand Hole	1		1	Each	30.00	30.00
41	Underdrains—8 In. Perf. Corrug. Metal Pipe	2,028		2,028	Lbs. Ft.	1.40	2,839.20
42	Piping Cast Iron—6 Inch				Lbs. Ft.	1.50	
43	Guard Rail	53		53	Lbs. Ft.	0.80	42.40
44	Pipe Hand Rail				Lbs. Ft.	3.00	
45	Ebrap	126		126	Cu. Yds.	5.00	630.00
46	Metal Gridding				Lbs.	0.13	
47	Stone or Gravel for Foundations	266		266	Cu. Yds.	3.00	798.00
48	Tunnel Construction—Type "A,"	1,570	72	1,642	Lbs. Ft.	325.00	533,650.00
49	Tunnel Construction—Type "B,"	59		59	Lbs. Ft.	400.00	23,600.00
50	Cross Aids				Lump Sum		
51	Ventilation Buildings—West and East Bldgs., Complete	61.3%	3.4%	64.7%	Lump Sum	340,000.00	219,980.00
52	Ventilation Equipment—Furn. and Install. Complete	10.5%	0.5%	11.0%	Lump Sum	180,000.00	17,600.00
53	Mechanical Equipment—Furn. and Install. Complete	6.7%		6.7%	Lump Sum	60,000.00	4,020.00
54	Electrical Equipment—Furn. and Install. Complete	10.4%	2.0%	12.4%	Lump Sum	210,000.00	26,040.00
55	Carbon Monoxide Detectors and Records—Furnishing and Installing Complete				Lump Sum		

Estimate Made by C. E. RIGGS

Checked by A. S. GELSTON

Approved J. W. BARKLEY
Chief Asst. Engr.

Approved

Approved

Total Value of Work Done to Date
Deductions—25% of Work Done
Deduction—\$100,000
Deduction—10% of Work Done
Total Due to Date
Previous Payments
Balance Due on This Estimate

1,427,659.34
142,765.93
1,284,893.41
1,236,934.85
47,958.56

This Estimate Approved WALLACE B. BOGGS

District Engineer, Joint Highway District No. 13
of the State of California

To correct Estimate No. Fifteen

Filed With the Board of Directors of Joint Highway District No. 13 of the State of California at Meeting Held November 9, 1935.

HARRY M. STOW, Secretary
By L. V. EATON, Assistant Secretary

Estimate of Work
From Oct. 1, 1935 to Oct. 31, 1935

JOINT HIGHWAY DISTRICT NO. 13
OF THE STATE OF CALIFORNIA
1448 Webster Street
Oakland, Calif.

Estimate No. Seventeen
Contractor—Six Companies of California, Inc.
Street—135 Sansome Street
City—San Francisco, Calif.

No.	Items	Total Quantities by Estimate To Date	Estimate This Month	Total Quantities Estimated To Date	Units	Contract Prices	Amounts at Contract Prices
1	Grading	784,215	16,046	800,261	Cu. Yds.	\$	264,086.13
2	Overhaul	2,854,638	52,272	2,836,910	Sq. Yds.		13,184.55
3	Structural Excavation—Class "A,"	36,338	128	36,466	Cu. Yds.	1.20	43,759.20
4	Structural Excavation—Class "B,"	268		268	Cu. Yds.	2.00	536.00
5	Shoulders				Sq. Ft.	0.0035	
6	Reinforcing Steel	2,221,522	300,000	2,521,522	Lbs.	0.04	100,860.88
7	Structural Steel				Lbs.	0.05	
8	Concrete Structures—Class "A," Concrete	10,801	149	10,950	Cu. Yds.	15.50	169,725.00
9	Concrete Structures—Class "B," Concrete	1,228		1,228	Cu. Yds.	14.50	17,806.00
10	Portland Cement Concrete Pavement—8 Inch				Sq. Ft.	0.24	
11	Portland Cement Concrete Pavement—6 Inch	31,101		31,101	Sq. Ft.	0.18	5,598.18
12	Asphalt Concrete	40,000		40,000	Sq. Ft.	0.08	3,200.00
13	Penetration Oil Macadam Pavement	80,000	80,000	80,000	Sq. Ft.	0.14	11,200.00
14	Concrete Curb—6 Inch	3,252		3,252	Lbs. Ft.	0.52	1,691.04
15	Concrete Curb—12 Inch	40		40	Lbs. Ft.	0.80	40.00
16	Concrete Curb—6 Inch with Guard				Lbs. Ft.	1.00	
17	Concrete Gutters	3,832		3,832	Sq. Ft.	0.25	958.00
18	Concrete Sidewalks				Sq. Ft.	0.13	
19	Fill Protection		1	1	Each	18.00	19.00
20	Corrugated Metal Pipe Culvert—8 Inch	98	72	170	Lbs. Ft.	1.30	221.00
21	Corrugated Metal Pipe Culvert—12 Inch	338	120	458	Lbs. Ft.	2.00	916.00
22	Corrugated Metal Pipe Culvert—18 Inch	590		590	Lbs. Ft.	3.00	1,770.00
23	Reinforced Concrete Pipe Culvert—18 Inch "S,"	98		154	Lbs. Ft.	1.20	184.80
24	Reinforced Concrete Pipe Culvert—18 Inch "S,"	733		733	Lbs. Ft.	1.50	1,199.50
25	Reinforced Concrete Pipe Culvert—18 Inch "S,"	395		395	Lbs. Ft.	1.80	711.00
26	Reinforced Concrete Pipe Culvert—24 Inch "X,"	1,326		1,326	Lbs. Ft.	2.00	5,834.40
27	Reinforced Concrete Pipe Culvert—24 Inch "X,"	579		579	Lbs. Ft.	4.40	4,921.50
28	Reinforced Concrete Pipe Culvert—36 Inch "X,"	232		232	Lbs. Ft.	8.50	232.00
29	Vitrified Pipe Sewers—6 Inch	215		215	Lbs. Ft.	1.00	215.00
30	Vitrified Pipe Sewers—8 Inch	10		10	Each	12.00	90.00
31	Manholes—Standard Tops				Each	100.00	400.00
32	Manholes—Inlet Tops	4		4	Each	90.00	400.00
33	Manholes—Grating Tops	3		3	Each	90.00	400.00
34	Storm Water Inlets—34 Inch Openings	1		1	Each	75.00	270.00
35	Storm Water Inlets—"B,"	4		4	Each	75.00	270.00
36	Storm Water Inlets—"C,"	3	1	4	Each	100.00	400.00
37	Lamp Holes—6 Inch	2		2	Each	80.00	320.00
38	Lamp Holes—8 Inch	3		3	Each	24.00	48.00
39	Lamp Holes—12 Inch	1		1	Each	26.00	26.00
40	Hand Hole	1		1	Each	38.00	108.00
41	Underdrains—8 In. Perf. Corrug. Metal Pipe	2,028		2,028	Lbs. Ft.	1.40	2,839.20
42	Piping Cast Iron—6 Inch				Lbs. Ft.	1.50	
43	Guard Rail	53		53	Lbs. Ft.	0.80	42.40
44	Pipe Hand Rail				Lbs. Ft.	3.00	
45	Riprap	126		126	Cu. Yds.	5.00	630.00
46	Metal Cribbing				Lbs.	0.13	
47	Stone or Gravel for Foundations	266		266	Cu. Yds.	3.00	798.00
48	Tunnel Construction—Type "A,"	1,642	280	1,922	Lbs. Ft.	325.00	624,650.00
49	Tunnel Construction—Type "B,"				Lbs. Ft.	400.00	
50	Gross Adits	59		59	Lbs. Ft.	40.00	2,360.00
51	Ventilation Buildings—West and East Bldgs., Complete	64.7%	13.4%	78.1%	Lump Sum		265,540.00
52	Ventilation Equipment—Furn. and Install. Complete	11%	0.2%	11.2%	Lump Sum		17,920.00
53	Mechanical Equipment—Furn. and Install. Complete	6.7%		6.7%	Lump Sum		4,020.00
54	Electrical Equipment—Furn. and Install. Complete	12.4%	3.6%	16%	Lump Sum		33,600.00
55	Carbon Monoxide Detectors and Recorders—Furnishing and Installing Complete				Lump Sum		

Estimate Made by C. E. RIGGS

Checked by A. S. GELSTON

Approved J. W. BARKLEY
Chief Asst. Engr.

Approved

Approved

Total Value of Work Done to Date
Deductions—25% of Work Done
Deduction—\$100,000

1,603,848.78

Deduction—10% of Work Done

160,384.88

Total Due to Date

1,443,463.90

Previous Payments

1,284,893.41

Balance Due on This Estimate

158,570.49

This Estimate Approved

WALLACE B. BOGGS

District Engineer, Joint Highway District No. 13
of the State of California

Filed With the Board of Directors of Joint Highway District No. 13 of the State of California at Meeting Held December 9, 1935.

HARRY M. STOW, Secretary
By L. V. EATON, Assistant Secretary

JOINT HIGHWAY DISTRICT NO. 13
OF THE STATE OF CALIFORNIA
1448 Webster Street
Oakland, Calif.

Estimate of Work

Estimate No. Eighteen
Contractor—Six Companies of California, Inc.
Street—155 Sansome Street
City—San Francisco, Calif.

From November 1, 1935 to November 30, 1935

No.	Items	Total Quantities By Last Estimate	Estimate This Month	Total Quantities Estimated To Date	Units	Contract Price	Amounts at Contract Price
1	Grading	800,261	.....	800,261	Cu. Yds.	\$ 0.33	264,086.13
2	Overhaul	2,636,910	.....	2,636,910	Sq. Yds.	0.006	13,184.55
3	Structural Excavation—Class "A"	36,466	285	36,751	Cu. Yds.	1.20	44,101.20
4	Structural Excavation—Class "B"	208	.....	268	Cu. Yds.	2.00	536.00
5	Shoulders	2,521,522	214,628	2,736,150	Sq. Ft.	0.034	109,446.00
6	Reinforcing Steel	.....	.....	.....	Lbs.	0.06	.....
7	Structural Steel	10,950	252	11,202	Cu. Yds.	13.50	173,631.00
8	Concrete Structures—Class "A"	1,128	.....	1,128	Cu. Yds.	14.50	17,806.00
9	Concrete Structures—Class "B"	.....	.....	.....	Sq. Ft.	0.24	.....
10	Portland Cement Concrete Pavement—8 Inch	31,101	.....	31,101	Sq. Ft.	0.18	5,588.18
11	Portland Cement Concrete Pavement—6 Inch	40,000	2,609	42,609	Sq. Ft.	0.08	3,408.72
12	Asphalt Concrete	80,000	.....	80,000	Sq. Ft.	0.14	11,200.00
13	Penetration Oil Macadam Pavement	3,252	.....	3,252	Lin. Ft.	0.52	1,691.04
14	Concrete Curb—6 Inch	.....	.....	.....	Lin. Ft.	0.80	.....
15	Concrete Curb—12 Inch	40	.....	40	Lin. Ft.	1.00	40.00
16	Concrete Curb—6 Inch with Guard	3,852	.....	3,852	Sq. Ft.	0.25	968.00
17	Concrete Gutters	.....	7,000	7,000	Sq. Ft.	0.13	910.00
18	Cement Sidewalks	1	1	2	Each	19.00	38.00
19	Full Protectors	170	220	390	Lin. Ft.	1.30	507.00
20	Corrugated Metal Pipe Culvert—12 Inch	458	10	468	Lin. Ft.	2.00	936.00
21	Corrugated Metal Pipe Culvert—18 Inch	590	456	1,046	Lin. Ft.	3.00	3,138.00
22	Reinforced Concrete Pipe Culvert—10 Inch "S"	154	.....	154	Lin. Ft.	1.20	184.80
23	Reinforced Concrete Pipe Culvert—12 Inch "S"	753	.....	753	Lin. Ft.	1.50	1,129.50
24	Reinforced Concrete Pipe Culvert—15 Inch "S"	395	.....	395	Lin. Ft.	1.80	711.00
25	Reinforced Concrete Pipe Culvert—18 Inch "S"	.....	.....	.....	Lin. Ft.	2.00	.....
26	Reinforced Concrete Pipe Culvert—24 Inch "X"	1,326	.....	1,326	Lin. Ft.	4.40	5,834.40
27	Reinforced Concrete Pipe Culvert—36 Inch "X"	579	.....	579	Lin. Ft.	8.50	4,921.50
28	Reinforced Concrete Pipe Culvert—36 Inch "X"	292	.....	232	Lin. Ft.	1.00	232.00
29	Vitrified Pipe Sewers—6 Inch	215	.....	215	Lin. Ft.	1.20	258.00
30	Vitrified Pipe Sewers—8 Inch	10	.....	10	Each	90.00	900.00
31	Manholes—Standard Tops	4	.....	4	Each	100.00	400.00
32	Manholes—Inlet Tops	3	.....	3	Each	90.00	270.00
33	Manholes—Grating Tops	3	.....	3	Each	75.00	225.00
34	Storm Water Inlets—34 Inch Openings	1	.....	1	Each	100.00	100.00
35	Storm Water Inlets—"B"	4	.....	4	Each	80.00	320.00
36	Storm Water Inlets—"C"	1	.....	1	Each	24.00	24.00
37	Lamp Holes—6 Inch	2	.....	2	Each	26.00	52.00
38	Lamp Holes—8 Inch	1	.....	1	Each	36.00	36.00
39	Lamp Holes—12 Inch	3	.....	3	Each	30.00	90.00
40	Hand Hole	2	.....	2	Each	30.00	60.00
41	Underdrains—8 In. Perf. Corrug. Metal Pipe	2,028	170	2,198	Lin. Ft.	1.40	3,077.20
42	Piping Cast Iron—6 Inch	.....	.....	.....	Lin. Ft.	1.50	.....
43	Guard Rail	53	313	366	Lin. Ft.	0.80	292.80
44	Pipe Hand Rail	126	.....	126	Cu. Yds.	3.00	378.00
45	Birap	.....	.....	.....	Lbs.	0.13	.....
46	Metal Cribbing	266	.....	266	Cu. Yds.	3.00	798.00
47	Stone or Gravel for Foundations	1,922	231	2,153	Lin. Ft.	325.00	699,725.00
48	Tunnel Construction—Type "A"	.....	.....	.....	Lin. Ft.	40.00	.....
49	Tunnel Construction—Type "B"	59	38	97	Lin. Ft.	40.00	3,880.00
50	Crass Attics	.....	.....	.....	Lump Sum	.....	.....
51	Ventilation Buildings—West and East Bldgs., Complete	78.1%	3.9%	82%	Lump Sum	340,000.00	278,800.00
52	Ventilation Equipment—Furn. and Install. Complete	11.2%	0.4%	11.6%	Lump Sum	160,000.00	18,560.00
53	Mechanical Equipment—Furn. and Install. Complete	6.7%	.....	6.7%	Lump Sum	60,000.00	4,020.00
54	Electrical Equipment—Furn. and Install. Complete	16%	0.2%	16.2%	Lump Sum	210,000.00	34,020.00
55	Carbon Monoxide Detectors and Recorders—Furnishing and Installing Complete	.....	.....	.....	Lump Sum	.....	.....

Estimate Made by C. E. RIGGS

Checked by A. S. GELSTON

Approved J. W. BARKLEY

Chief Asst. Engr.

Approved.....

Approved.....

Total Value of Work Done to Date.....

Deductions—25% of Work Done.....

Deduction—\$100,000.....

Deduction—10% of Work Done.....

Total Due to Date.....

Previous Payments.....

Balance Due on This Estimate.....

This Estimate Approved

WALLACE B. BOGGS

District Engineer, Joint Highway District No. 13
of the State of California

Filed With the Board of Directors of Joint Highway District No. 13 of the State of California at Meeting Held January 9, 1936.

HARRY M. STOW, Secretary
By L. V. EATON, Assistant Secretary

Estimate No. Nineteen
Contractor—Six Companies of California, Inc.
Street—155 Sansome Street
City—San Francisco, Calif.

Estimate of Work

From December 1, 1935 to December 31, 1935

1448 Webster Street
Oakland, Calif.

No.	Items	Total Quantities As per Billings	Estimate This Month	Total Quantities To Date	Units	Contract Price	Amounts at Contract Prices
1	Grading	800,261	4,814	805,075	Cu. Yds.	\$	265,674.75
2	Overhaul	2,636,910	500,000	3,136,910	Sq. Yds.		15,684.56
3	Structural Excavation—Class "A,"	36,751	108	36,859	Cu. Yds.		44,230.80
4	Structural Excavation—Class "B,"	268		268	Cu. Yds.		536.00
5	Shoulders		5,400	5,400	Sq. Ft.		189.00
6	Reinforcing Steel	2,736,150	151,167	2,887,317	Lbs.		115,492.68
7	Structural Steel				Lbs.		
8	Concrete Structures—Class "A," Concrete	11,202	138	11,340	Cu. Yds.		175,770.00
9	Concrete Structures—Class "B," Concrete	1,228		1,228	Cu. Yds.		17,806.00
10	Portland Cement Concrete Pavement—8 Inch				Sq. Ft.		
11	Portland Cement Concrete Pavement—6 Inch	31,101		31,101	Sq. Ft.		5,598.18
12	Asphalt Concrete	42,609		42,609	Sq. Ft.		3,046.72
13	Penetration Oil Macadam Pavement	80,000		80,000	Sq. Ft.		11,200.00
14	Concrete Curb—6 Inch	3,252		3,252	Lin. Ft.		1,691.04
15	Concrete Curb—12 Inch				Lin. Ft.		
16	Concrete Curb—6 Inch with Guard	40		40	Lin. Ft.		40.00
17	Concrete Gutters	3,832		3,832	Sq. Ft.		958.00
18	Cement Sidewalks	7,000	2,000	9,000	Sq. Ft.		1,170.00
19	Fill Projects	30	2	4	Each		76.00
20	Corrugated Metal Pipe Culvert—8 Inch	390	206	596	Lin. Ft.		774.80
21	Corrugated Metal Pipe Culvert—12 Inch	468		468	Lin. Ft.		936.00
22	Corrugated Metal Pipe Culvert—18 Inch	1,046		1,046	Lin. Ft.		3,000.00
23	Reinforced Concrete Pipe Culvert—10 Inch "S,"	154		154	Lin. Ft.		184.80
24	Reinforced Concrete Pipe Culvert—12 Inch "S,"	753		753	Lin. Ft.		1,129.50
25	Reinforced Concrete Pipe Culvert—14 Inch "S,"	395		395	Lin. Ft.		711.00
26	Reinforced Concrete Pipe Culvert—18 Inch "S,"				Lin. Ft.		
27	Reinforced Concrete Pipe Culvert—24 Inch "X,"	1,326		1,326	Lin. Ft.		5,834.40
28	Reinforced Concrete Pipe Culvert—36 Inch "X,"	570		570	Lin. Ft.		4,921.50
29	Vitrified Pipe Sewers—6 Inch	232		232	Lin. Ft.		232.00
30	Vitrified Pipe Sewers—8 Inch	215		215	Lin. Ft.		258.00
31	Manholes—Standard Tops	10		10	Each		900.00
32	Manholes—Inlet Tops	4		4	Each		400.00
33	Manholes—Grating Tops	3		3	Each		270.00
34	Storm Water Inlets—34 Inch Openings	1		1	Each		75.00
35	Storm Water Inlets—"B,"	4		4	Each		400.00
36	Storm Water Inlets—"C,"	2		2	Each		560.00
37	Lamp Holes—8 Inch	2		2	Each		48.00
38	Lamp Holes—12 Inch	1		1	Each		26.00
39	Lamp Holes—18 Inch	3		3	Each		108.00
40	Hand Hole	2		2	Each		30.00
41	Underdrains—8 In. Perf. Corrug. Metal Pipe	2,198		2,198	Lin. Ft.		3,077.20
42	Piping Cast Iron—6 Inch				Lin. Ft.		
43	Guard Rail	53	600	653	Lin. Ft.		522.40
44	Pipe Hand Rail	313		313	Lin. Ft.		939.00
45	Bliprap	126		126	Cu. Yds.		630.00
46	Metal Cribbing				Lbs.		
47	Stone or Gravel for Foundations	266		266	Cu. Yds.		798.00
48	Tunnel Construction—Type "A,"	2,153	157	2,310	Lin. Ft.		750,750.00
49	Tunnel Construction—Type "B,"				Lin. Ft.		
50	Cross Adits	97		97	Lin. Ft.		3,880.00
51	Ventilation Buildings—West and East Bldgs., Complete	82%	1.9%	83.9%	Lump Sum		285,260.00
52	Ventilation Equipment—Furn. and Install. Complete	11.6%		11.6%	Lump Sum		18,560.00
53	Mechanical Equipment—Furn. and Install. Complete	6.7%		6.7%	Lump Sum		4,020.00
54	Electrical Equipment—Furn. and Install. Complete	16.2%	0.5%	16.7%	Lump Sum		35,070.00
55	Carbon Monoxide Detectors and Records— Furnishing and Installing Complete				Lump Sum		

Estimate Made by C. E. RIGGS

Checked by A. S. GEISTON

Approved J. W. BARKLEY
Chief Asst. Engr.

Approved
Approved

Total Value of Work Done to Date
Deductions—25% of Work Done
Deduction—\$100,000
Deduction—10% of Work Done

Total Due to Date
Previous Payments
Balance Due on This Estimate

This Estimate Approved

WALLACE B. BOGGS

District Engineer, Joint Highway District No. 13
of the State of California

1,783,999.32
1,605,599.69
1,540,499.06
178,399.93
1,605,599.69
1,540,499.06
65,100.63

Filed With the Board of Directors of Joint Highway District No. 13 of the State of California at Meeting Held February 7, 1936.

HARRY M. STOW, Secretary
By L. V. EATON, Assistant Secretary

JOINT HIGHWAY DISTRICT NO. 13
OF THE STATE OF CALIFORNIA
Contractor—Six Companies of California, Inc.
Street—156 Sansome Street
City—San Francisco, Calif.

Estimate of Work

From Jan. 1, 1936 to Jan. 31, 1936

No.	Items	Total Quantities by Last Estimate	Estimate This Month	Total Quantities To Date	Units	Contract Price	Amounts at Contract Price
1	Grading	805,075	217,778	805,075	Cu. Yds. \$	0.33	\$205,674.75
2	Overhaul	3,136,910	.....	3,654,988	Sq. Yds.	0.0085	16,773.44
3	Structural Excavation—Class "A,"	36,559	.....	36,559	Cu. Yds.	1.20	44,220.80
4	Structural Excavation—Class "B,"	268	.....	268	Cu. Yds.	2.00	536.00
5	Shoulders	5,400	.....	5,400	Sq. Ft.	0.035	189.00
6	Reinforcing Steel	2,867,317	75,490	2,962,807	Lbs.	0.04	118,512.28
7	Structural Steel	.....	.....	.....	Lbs.	0.05	.....
8	Concrete Structures—Class "A," Concrete	11,340	.....	11,340	Cu. Yds.	15.50	175,770.00
9	Concrete Structures—Class "B," Concrete	1,225	.....	1,225	Cu. Yds.	14.50	17,806.00
10	Portland Cement Concrete Pavement—8 Inch	31,101	.....	31,101	Sq. Ft.	0.84	5,598.18
11	Portland Cement Concrete Pavement—8 Inch	42,609	.....	42,609	Sq. Ft.	0.18	5,598.18
12	Asphalt Concrete	80,000	.....	80,000	Sq. Ft.	0.08	8,000.00
13	Penetration Oil Macadam Pavement	80,000	.....	80,000	Sq. Ft.	0.14	11,200.00
14	Concrete Curb—6 Inch	3,252	.....	3,252	Lm. Ft.	0.52	1,691.04
15	Concrete Curb—12 Inch	.....	.....	.....	Lm. Ft.	0.80	.....
16	Concrete Curb—6 Inch with Guard	40	.....	40	Lm. Ft.	1.00	40.00
17	Concrete Gutters	3,832	.....	3,832	Sq. Ft.	0.25	958.00
18	Cement Sidewalks	9,000	.....	9,000	Sq. Ft.	0.13	1,170.00
19	Full Protectors	4	2	6	Each	19.00	114.00
20	Corrugated Metal Pipe Culvert—8 Inch	596	120	716	Lm. Ft.	1.30	930.80
21	Corrugated Metal Pipe Culvert—12 Inch	468	.....	468	Lm. Ft.	2.00	936.00
22	Corrugated Metal Pipe Culvert—18 Inch	1,046	.....	1,046	Lm. Ft.	3.00	3,138.00
23	Reinforced Concrete Pipe Culvert—10 Inch "S"	154	.....	154	Lm. Ft.	1.20	184.80
24	Reinforced Concrete Pipe Culvert—12 Inch "S"	753	.....	753	Lm. Ft.	1.50	1,129.50
25	Reinforced Concrete Pipe Culvert—15 Inch "S"	395	.....	395	Lm. Ft.	1.80	711.00
26	Reinforced Concrete Pipe Culvert—18 Inch "S"	.....	.....	.....	Lm. Ft.	2.00	.....
27	Reinforced Concrete Pipe Culvert—24 Inch "X"	1,326	.....	1,326	Lm. Ft.	4.40	5,834.40
28	Reinforced Concrete Pipe Culvert—36 Inch "X"	579	.....	579	Lm. Ft.	8.50	4,921.50
29	Vitrified Pipe Sewers—6 Inch	232	.....	232	Lm. Ft.	1.00	232.00
30	Vitrified Pipe Sewers—8 Inch	215	.....	215	Lm. Ft.	1.30	279.50
31	Manholes—Standard Tops	10	.....	10	Each	90.00	900.00
32	Manholes—Inlet Tops	4	.....	4	Each	100.00	400.00
33	Manholes—Grating Tops	3	.....	3	Each	90.00	270.00
34	Storm Water Inlets—34 Inch Openings	1	.....	1	Each	75.00	75.00
35	Storm Water Inlets—"B,"	4	.....	4	Each	100.00	400.00
36	Storm Water Inlets—"C,"	7	1	8	Each	80.00	640.00
37	Lamp Holes—6 Inch	2	.....	2	Each	24.00	48.00
38	Lamp Holes—8 Inch	1	.....	1	Each	26.00	26.00
39	Lamp Holes—12 Inch	3	.....	3	Each	36.00	108.00
40	Hand Hole	2	.....	2	Each	30.00	60.00
41	Underdrains—8 In. Perfor. Corrug. Metal Pipe	2,198	.....	2,198	Lm. Ft.	1.40	3,077.20
42	Piping Cast Iron—6 Inch	.....	.....	.....	Lm. Ft.	1.50	.....
43	Guard Rail	653	.....	653	Lm. Ft.	0.80	522.40
44	Pipe Hand Rail	313	.....	313	Lm. Ft.	3.00	939.00
45	Riprap	126	.....	126	Cu. Yds.	5.00	630.00
46	Metal Gribbing	.....	.....	.....	Lbs.	0.13	.....
47	Stone or Gravel for Foundations	266	.....	266	Cu. Yds.	3.00	798.00
48	Tunnel Construction—Type "A,"	2,310	229	2,539	Lm. Ft.	325.00	825,175.00
49	Tunnel Construction—Type "B,"	.....	.....	.....	Lm. Ft.	40.00	.....
50	Cross Adits	97	.....	97	Lm. Ft.	40.00	3,880.00
51	Ventilation Buildings—West and East Bldgs., Complete	.....	1.9%	.....	Lump Sum	.....	291,720.00
52	Ventilation Equipment—Furn. and Install. Complete	88.9%	.....	88.8%	Lump Sum	340,000.00	18,720.00
53	Mechanical Equipment—Furn. and Install. Complete	11.6%	0.1%	11.7%	Lump Sum	160,000.00	4,020.00
54	Electrical Equipment—Furn. and Install. Complete	6.7%	.....	6.7%	Lump Sum	80,000.00	35,280.00
55	Carbon Monoxide Detectors and Recorders—Furnishing and Installing Complete	16.7%	0.1%	16.8%	Lump Sum	210,000.00	.....
							15,000.00
Estimate Made by C. E. RIGGS							1,869,636.81
Checked by A. S. GELTON							.....
Approved J. W. BARKLEY							1,682,673.13
Chief Asst. Engr.							1,605,599.39
Approved.....							186,963.68
Approved.....							77,073.74

Estimate Made by C. E. RIGGS

Checked by A. S. GELTON

Approved J. W. BARKLEY
Chief Asst. Engr.

Approved.....

Approved.....

This Estimate Approved WALLACE B. BOGGS

District Engineer, Joint Highway District No. 13
of the State of California

Filed With the Board of Directors of Joint Highway District No. 13 of the State of California at Meeting Held
March 10, 1936.

HARRY M. STOW, Secretary
By L. V. EATON, Assistant Secretary

JOINT HIGHWAY DISTRICT NO. 13
OF THE STATE OF CALIFORNIA
1448 Webster Street
Oakland, Calif.

Estimate No. Twenty-one
Contractor—Six Companies of California, Inc.
Street—135 Sansome Street
City—San Francisco, Calif.

Estimate of Work

From February 1, 1936 to February 29, 1936

No.	Items	Total Quantities by Last Estimate	Estimate This Month	Total Quantities To Date	Units	Contract Price	Amounts at Contract Price
1	Grading	805,075	287,287	805,075	Cu. Yds.	\$	265,674.75
2	Overhaul	3,354,688		3,641,975	Sta. Yds.	0.005	18,209.88
3	Structural Excavation—Class "A"	36,859		36,859	Cu. Yds.	1.20	44,230.80
4	Structural Excavation—Class "B"	268		268	Cu. Yds.	2.00	536.00
5	Shoulders	5,400		5,400	Sq. Ft.	0.035	189.00
6	Reinforcing Steel	2,962,807	88,759	3,051,566	Lbs.	0.04	122,062.64
7	Structural Steel	11,340		11,340	Cu. Yds.	15.50	175,170.00
8	Concrete Structures—Class "A"	1,228		1,228	Sq. Ft.	0.24	17,806.00
9	Concrete Structures—Class "B"	31,101		31,101	Sq. Ft.	0.18	5,598.18
10	Portland Cement Concrete Pavement—3 Inch	42,609		42,609	Sq. Ft.	0.08	3,408.72
11	Portland Cement Concrete Pavement—6 Inch	80,000		80,000	Sq. Ft.	0.14	11,200.00
12	Asphalt Concrete	3,252		3,252	Lin. Ft.	0.32	1,691.04
13	Penetration Oil Macadam Pavement				Lin. Ft.	0.80	
14	Concrete Curb—6 Inch	40		40	Lin. Ft.	1.00	40.00
15	Concrete Curb—12 Inch	3,832		3,832	Sq. Ft.	0.25	958.00
16	Concrete Curb—6 Inch with Guard	9,000		9,000	Sq. Ft.	0.13	1,170.00
17	Concrete Gutters	6		6	Each		114.00
18	Cement Sidewalks	716		716	Lin. Ft.	1.30	930.80
19	Full Protectors	468		468	Lin. Ft.	2.00	936.00
20	Corrugated Metal Pipe Culvert—8 Inch	1,046		1,046	Lin. Ft.	3.00	3,138.00
21	Corrugated Metal Pipe Culvert—12 Inch	154		154	Lin. Ft.	1.20	184.80
22	Corrugated Metal Pipe Culvert—18 Inch	753		753	Lin. Ft.	1.50	1,129.50
23	Reinforced Concrete Pipe Culvert—8 Inch	395		395	Lin. Ft.	1.80	711.00
24	Reinforced Concrete Pipe Culvert—12 Inch				Lin. Ft.	2.00	
25	Reinforced Concrete Pipe Culvert—18 Inch	1,326		1,326	Lin. Ft.	4.40	5,834.40
26	Reinforced Concrete Pipe Culvert—24 Inch	579		579	Lin. Ft.	8.50	4,921.50
27	Reinforced Concrete Pipe Culvert—34 Inch	232		232	Lin. Ft.	1.00	232.00
28	Reinforced Concrete Pipe Culvert—36 Inch	215		215	Lin. Ft.	1.20	258.00
29	Vitrified Pipe Sowers—8 Inch	10		10	Each	80.00	800.00
30	Vitrified Pipe Sowers—12 Inch	4		4	Each	100.00	400.00
31	Manholes—Standard Tops	3		3	Each	90.00	270.00
32	Manholes—Inlet Tops	3		3	Each	75.00	225.00
33	Manholes—Grating Tops	4		4	Each	100.00	400.00
34	Storm Water Inlets—34 Inch Openings	1		1	Each	75.00	75.00
35	Storm Water Inlets—'B'	4		4	Each	100.00	400.00
36	Storm Water Inlets—'C'	8		8	Each	80.00	640.00
37	Lamp Holes—6 Inch	2		2	Each	24.00	48.00
38	Lamp Holes—8 Inch	1		1	Each	26.00	26.00
39	Lamp Holes—12 Inch	3		3	Each	38.00	114.00
40	Hand Hole	2		2	Each	30.00	60.00
41	Underdrains—8 In. Perf. Corrug. Metal Pipe	2,198		2,198	Lin. Ft.	1.40	3,077.20
42	Piping—Cast Iron—6 Inch				Lin. Ft.	1.50	
43	Guard Rail	653		653	Lin. Ft.	0.80	522.40
44	Pipe Hand Rail	313		313	Lin. Ft.	3.00	939.00
45	Riprap	126		126	Cu. Yds.	5.00	630.00
46	Metal Grubbing				Lbs.	0.13	
47	Stone or Gravel for Foundations	266		266	Cu. Yds.	3.00	798.00
48	Tunnel Construction—Type "A"	2,539		2,781	Lin. Ft.	325.00	903,825.00
49	Tunnel Construction—Type "B"				Lin. Ft.	400.00	
50	Cross Adits	97		97	Lin. Ft.	40.00	3,880.00
51	Ventilation Buildings—West and East Bldgs., Complete		1.5%		Lump Sum		296,820.00
52	Ventilation Equipment—Furn. and Install. Complete	85.8%		87.3%	Lump Sum		18,720.00
53	Mechanical Equipment—Furn. and Install. Complete	11.7%		11.7%	Lump Sum		4,020.00
54	Electrical Equipment—Furn. and Install. Complete	6.7%		6.7%	Lump Sum		35,280.00
55	Carbon Monoxide Detectors and Records—Furnishing and Installing Complete	16.8%		16.8%	Lump Sum		

Estimate Made by C. E. RIGGS

Checked by A. S. GELSTON

Approved J. W. BARKLEY
Chief Asst. Engr.

Total Value of Work Done to Date
Deductions—25% of Work Done
Deduction—\$100.00
Deduction—10% of Work Done

Total Due to Date

Previous Payments

Balance Due on This Estimate

1,958,373.61
193,837.36
1,762,536.25
1,682,673.13
79,863.12

This Estimate Approved WALLACE B. BOGGS
District Engineer, Joint Highway District No. 13
of the State of California

Filed With the Board of Directors of Joint Highway District No. 13 of the State of California at Meeting Held April 9, 1936.

HARRY M. STOW, Secretary
By L. V. EATON, Assistant Secretary

Estimate No. Twenty-two
Contractor—Six Companies of California, Inc.
Street—155 Sansome Street
City—San Francisco, Calif.

Estimate of Work

From March 1, 1936 to March 31, 1936

No.	Items	Total Quantities By Item Estimated	Estimated This Month	Total Quantities To Date	Units	Contract Price	Amounts at Contract Price
1	Grading	805.075	75,968	805.075	Cu. Yds.	\$	205,674.75
2	Overhaul	3,641.975	89	3,715.943	Sta. Yds.	0.005	18,579.78
3	Structural Excavation—Class "A,"	36,859	93	36,948	Cu. Yds.	1.20	44,337.60
4	Structural Excavation—Class "B,"	268	93	361	Cu. Yds.	2.00	722.00
5	Shoulders	5,400		5,400	Sq. Ft.	0.035	189.00
6	Reinforcing Steel	3,051,566	109,070	3,160,636	Lbs.	0.04	126,425.44
7	Structural Steel		138,619	138,619	Lbs.	0.08	6,930.95
8	Concrete Structures—Class "A," Concrete		508	11,848	Cu. Yds.	15.50	133,644.00
9	Concrete Structures—Class "B," Concrete	1,228	—4.9	1,223.1	Cu. Yds.	14.50	17,734.95
10	Portland Cement Concrete Pavement—8 Inch	31,101		31,101	Sq. Ft.	0.18	5,598.18
11	Portland Cement Concrete Pavement—6 Inch	42,609		42,609	Sq. Ft.	0.08	3,408.72
12	Asphalt Concrete	80,000		80,000	Sq. Ft.	0.14	11,200.00
13	Penetration Oil Macadam Pavement	3,252		3,252	Lin. Ft.	0.52	1,691.04
14	Concrete Curb—6 Inch				Lin. Ft.	0.80	
15	Concrete Curb—12 Inch	40		40	Lin. Ft.	1.00	40.00
16	Concrete Curb—6 Inch with Guard				Lin. Ft.	1.00	
17	Concrete Gutters	3,832		3,832	Sq. Ft.	0.25	958.00
18	Cement Sidewalks	9,000		9,000	Sq. Ft.	0.13	1,170.00
19	Full Protectors	6		6	Each	19.00	114.00
20	Corrugated Metal Pipe Culvert—8 Inch	716	20	736	Lin. Ft.	1.30	956.80
21	Corrugated Metal Pipe Culvert—12 Inch	468		468	Lin. Ft.	2.00	936.00
22	Corrugated Metal Pipe Culvert—18 Inch	1,046		1,046	Lin. Ft.	3.00	3,138.00
23	Reinforced Concrete Pipe Culvert—10 Inch 'S'	154		154	Lin. Ft.	1.20	184.80
24	Reinforced Concrete Pipe Culvert—12 Inch 'S'	753		753	Lin. Ft.	1.50	1,129.50
25	Reinforced Concrete Pipe Culvert—15 Inch 'S'	395		395	Lin. Ft.	1.80	711.00
26	Reinforced Concrete Pipe Culvert—18 Inch 'S'				Lin. Ft.	2.00	
27	Reinforced Concrete Pipe Culvert—24 Inch 'X'	1,326		1,326	Lin. Ft.	4.40	5,834.40
28	Reinforced Concrete Pipe Culvert—36 Inch 'X'	579		579	Lin. Ft.	8.50	4,921.50
29	Victrol Pipe Sewers—6 Inch	232	3	235	Lin. Ft.	1.00	235.00
30	Victrol Pipe Sewers—8 Inch	215		215	Lin. Ft.	1.20	258.00
31	Manholes—Standard Tops	10		10	Each	90.00	900.00
32	Manholes—Inlet Tops	4		4	Each	100.00	400.00
33	Manholes—Grating Tops	3		3	Each	90.00	270.00
34	Storm Water Inlets—34 Inch Openings	1		1	Each	75.00	75.00
35	Storm Water Inlets—'B'	4		4	Each	100.00	400.00
36	Storm Water Inlets—'C'	8		8	Each	80.00	640.00
37	Lamp Holes—6 Inch	2		2	Each	24.00	48.00
38	Lamp Holes—8 Inch	1		1	Each	26.00	26.00
39	Lamp Holes—12 Inch	3		3	Each	36.00	108.00
40	Hand Hole	2		2	Each	30.00	60.00
41	Underdrains—8 In. Peri. Corrug. Metal Pipe	2,198	160	2,358	Lin. Ft.	1.40	3,301.20
42	Piping Cast Iron—6 Inch				Lin. Ft.	1.50	
43	Guard Rail	653		653	Lin. Ft.	0.80	522.40
44	Pipe Hand Rail	313	198	511	Lin. Ft.	3.00	1,533.00
45	Riprap	126	2	128	Cu. Yds.	3.00	640.00
46	Metal Gribbing				Lbs.	0.13	
47	Stone or Gravel for Foundations	266	33	299	Cu. Yds.	3.00	897.00
48	Tunnel Construction—Type "A,"	2,781	174	2,955	Lin. Ft.	325.00	960,375.00
49	Tunnel Construction—Type "B,"				Lin. Ft.	400.00	
50	Gross Adits				Lin. Ft.	40.00	7,720.00
51	Ventilation Buildings—West and East Bldgs., Complete	97		193	Lump Sum		299,540.00
52	Ventilation Equipment—Furn. and Install.	87.3%	0.8%	88.1%	Lump Sum		62,880.00
53	Mechanical Equipment—Furn. and Install.	11.7%	27.6%	39.3%	Lump Sum		4,020.00
54	Electrical Equipment—Furn. and Install.	6.7%		6.7%	Lump Sum		35,700.00
55	Carbon Monoxide Detectors and Recorders—Furnishing and Installing Complete	16.8%	0.2%	17.0%	Lump Sum		
							15,000.00
Estimate Made by C. E. RIGGS							\$2,086,778.95
Checked by A. S. GELSTON							
Approved J. W. BARKLEY							208,677.90
Chief Asst. Engr.							1,878,101.05
Approved							\$1,762,536.25
Approved							115,584.80
Balance Due on This Estimate							
Total Value of Work Done to Date							
Deductions—25% of Work Done							
Deduction—\$100,000							
Deduction—10% of Work Done							
Total Due to Date							
Previous Payments							
Balance Due on This Estimate							

Estimate Made by C. E. RIGGS

Checked by A. S. GELSTON

Approved J. W. BARKLEY

Chief Asst. Engr.

Approved

Approved

This Estimate Approved

WALLACE B. BOGGS

District Engineer, Joint Highway District No. 13
of the State of California

Filed With the Board of Directors of Joint Highway District No. 13 of the State of California at Meeting Held May 7, 1936.

HARRY M. STOW, Secretary
By L. V. EATON, Assistant Secretary

Estimate No. Twenty-three
Contractor—Six Companies of California, Inc.
Street—155 Sansome Street
City—San Francisco, Calif.

Estimate of Work

From April 1, 1936 to April 30, 1936

No.	Items	Total Quantities by Last Estimate	Estimate This Month	Total Quantities Estimated To Date	Units	Contract Price	Amounts at Contract Price
1	Grading	805,075	960	806,035	Cu. Yds. \$	0.33	265,991.55
2	Overhaul	3,715,943	507,381	4,223,324	Sq. Yds.	0.003	21,716.62
3	Structural Excavation—Class "A"	36,948	407	37,355	Cu. Yds.	1.20	44,826.00
4	Structural Excavation—Class "B"	361		361	Cu. Yds.	2.00	722.00
5	Shoulders	5,400		5,400	Sq. Ft.	0.039	210.00
6	Reinforcing Steel	3,160,636	135,370	3,296,006	Lbs.	0.04	131,840.24
7	Structural Steel	138,619	124,757	263,376	Lbs.	0.05	13,168.80
8	Concrete Structures—Class "A"	11,848	450	12,298	Cu. Yds.	13.50	190,619.00
9	Concrete Structures—Class "B"	11,848	450	12,298	Cu. Yds.	13.50	190,619.00
10	Portland Cement Concrete Pavement—8 Inch	1,223.1		1,223.1	Cu. Yds.	14.90	17,734.95
11	Portland Cement Concrete Pavement—6 Inch				Sq. Ft.	0.24	5,998.18
12	Asphalt Concrete				Sq. Ft.	0.18	4,269.09
13	Penetration Oil Macadam Pavement				Sq. Ft.	0.08	3,587.72
14	Concrete Curb—6 Inch	3,252		3,252	Sq. Ft.	0.14	11,200.00
15	Concrete Curb—12 Inch				Lbs. Ft.	0.32	1,691.04
16	Concrete Curb—6 Inch with Guard	40		40	Lbs. Ft.	0.80	32.00
17	Concrete Gutters	3,832		3,832	Sq. Ft.	0.25	958.00
18	Cement Sidewalks	9,000		9,000	Sq. Ft.	0.13	1,170.00
19	Fill Protectors	6		6	Each	19.00	114.00
20	Corrugated Metal Pipe Culvert—8 Inch	736		736	Lbs. Ft.	1.30	956.80
21	Corrugated Metal Pipe Culvert—12 Inch	468		468	Lbs. Ft.	2.00	936.00
22	Corrugated Metal Pipe Culvert—18 Inch	1,046		1,046	Lbs. Ft.	3.00	3,138.00
23	Reinforced Concrete Pipe Culvert—10 Inch "S"	154		154	Lbs. Ft.	1.20	184.80
24	Reinforced Concrete Pipe Culvert—12 Inch "S"	753		753	Lbs. Ft.	1.50	1,129.50
25	Reinforced Concrete Pipe Culvert—14 Inch "S"	395		395	Lbs. Ft.	1.80	711.00
26	Reinforced Concrete Pipe Culvert—16 Inch "S"				Lbs. Ft.	2.00	
27	Reinforced Concrete Pipe Culvert—24 Inch "X"	1,326		1,326	Lbs. Ft.	4.40	5,834.40
28	Reinforced Concrete Pipe Culvert—36 Inch "X"	579		579	Lbs. Ft.	8.80	4,921.50
29	Vitrified Pipe Sewers—6 Inch	235		235	Lbs. Ft.	1.00	235.00
30	Vitrified Pipe Sewers—8 Inch	215		215	Lbs. Ft.	1.20	258.00
31	Manholes—Standard Tops	10		10	Each	90.00	900.00
32	Manholes—Inlet Tops	4		4	Each	100.00	400.00
33	Manholes—Grating Tops	3		3	Each	90.00	270.00
34	Storm Water Inlets—34 Inch Openings	1		1	Each	75.00	75.00
35	Storm Water Inlets—"B"	4		4	Each	100.00	400.00
36	Storm Water Inlets—"C"	8		8	Each	80.00	640.00
37	Lamp Holes—6 Inch	2		2	Each	24.00	48.00
38	Lamp Holes—8 Inch	1		1	Each	26.00	26.00
39	Lamp Holes—12 Inch	3		3	Each	36.00	108.00
40	Hand Hole	2		2	Each	30.00	60.00
41	Underdrains—8 In. Perft. Corrug. Metal Pipe	2,358	108	2,466	Lbs. Ft.	1.40	3,452.40
42	Piping Cast Iron—6 Inch				Lbs. Ft.	1.50	
43	Guard Rail	653		653	Lbs. Ft.	0.80	522.40
44	Pipe Hand Rail	511		511	Lbs. Ft.	3.00	1,533.00
45	Riprap	128		128	Cu. Yds.	5.00	640.00
46	Metal Cribbing				Lbs.	0.13	
47	Stone or Gravel for Foundations	299	36	335	Cu. Yds.	3.00	1,005.00
48	Tunnel Construction—Type "A"	2,955	356	3,311	Lbs. Ft.	325.00	1,075,075.00
49	Tunnel Construction—Type "B"				Lbs. Ft.	400.00	
50	Cross Adits	193	6	199	Lbs. Ft.	40.00	7,960.00
51	Ventilation Buildings—West and East Bldgs., Complete				Lump Sum		303,960.00
52	Ventilation Equipment—Furn. and Install.	88.1%	1.3%	89.4%	Lump Sum		76,480.00
53	Mechanical Equipment—Furn. and Install.	39.3%	8.5%	47.8%	Lump Sum		5,820.00
54	Electrical Equipment—Furn. and Install.	6.7%	3.0%	9.7%	Lump Sum		36,540.00
55	Carbon Monoxide Detectors and Recorders—Furnishing and Installing Complete	17.0%	0.4%	17.4%	Lump Sum		

Estimate Made by C. E. RIGGS

Checked by A. S. GELSTON

Approved J. W. BARKLEY
Chief Asst. Engr.

Approved

Approved

Total Value of Work Done to Date
Deductions—25% of Work Done
Deduction—\$100,000
Deduction—10% of Work Done
Total Due to Date
Previous Payments
Balance Due on This Estimate

\$2,245,607.90
224,560.79
2,021,047.11
1,876,101.05
\$ 142,946.06

This Estimate Approved WALLACE B. BOGGS

District Engineer, Joint Highway District No. 13
of the State of California

DEFENDANT'S EXHIBIT YYY

June 10, 1936

File: Broadway Tunnel

Estimate No. 24

Six Companies of California,

P. O. Box 120,

Berkeley, California.

Gentlemen :

Enclosed please find our check in amount \$148,-
586.98, in payment of Estimate No. 24.

A copy of Estimate No. 24 is also enclosed.

Yours very truly,

JOINT HIGHWAY DISTRICT NO. 13

OF THE STATE OF CALIFORNIA

By (signed) JOHN R. HUNTER

Comptroller

JRH/VE

Encs.

[Endorsed]: U. S. Dist. Ct. N. D. Cal. No.
20101-R. Deft's Ex. No. YYY. Filed April 28, 1938.
Walter B. Maling, Clerk. By J. A. Schaertzer,
Deputy Clerk.

[illegible]

ENDORSEMENT OF THIS CHECK EVIDENCES PAY-
MENT IN FULL OF ITEMS SET FORTH IN VOUCHER

No 1934

OAKLAND, CALIFORNIA

Jul 10 1933

**PAY TO THE
ORDER OF**

SIX COMPANIES OF CALIFORNIA

\$148,586.98

ONE HUNDRED FORTY-EIGHT THOUSAND FIVE HUNDRED EIGHTY-SIX & 98/100

DOLLARS

90-1 OAKLAND MAIN OFFICE 90-1

1200 BROADWAY

Bank of America

TRUST & SAVINGS ASSOCIATION

OAKLAND, CALIFORNIA

Joint Highway District No. 13 of the State of California

DOLLARS

PRESIDENT

TREASURER

Filed With the Board of Directors of Joint Highway District No. 13 of the State of California at Meeting Held

HARRY M. STOW, Secretary
By L. V. EATON, Assistant Secretary

JOINT HIGHWAY DISTRICT NO. 13
OF THE STATE OF CALIFORNIA
1448 Webster Street
Oakland, Calif.

Estimate No. Twenty-four
Contractor—Six Companies of California, Inc.
Street—155 Sansome Street
City—San Francisco, Calif.

Estimate of Work

From May 1, 1936 to May 31, 1936

No.	Items	Total Quantities by Last Estimate	Estimate This Month	Total Quantities Estimated to Date	Units	Contract Prices	Amounts at Contract Prices
1	Grading	806,095	997	807,032	Cu. Yds.	\$	266,320.56
2	Overhaul	4,223,324	221,000	4,444,324	Sq. Yds.	0.005	22,221.62
3	Structural Excavation—Class "A,"	37,355	137	37,492	Cu. Yds.	1.20	44,990.40
4	Structural Excavation—Class "B,"	361		361	Cu. Yds.	2.00	722.00
5	Shoulders	5,400		5,400	Sq. Ft.	0.0035	189.00
6	Reinforcing Steel	3,296,006	280,893	3,576,899	Lbs.	0.04	143,075.96
7	Structural Steel	263,376		263,376	Lbs.	0.05	13,168.80
8	Concrete Structures—Class "A," Concrete	12,298	272	12,570	Cu. Yds.	15.50	194,835.00
9	Concrete Structures—Class "B," Concrete	1,223.1		1,223.1	Cu. Yds.	14.50	17,734.95
10	Portland Cement Concrete Pavement—8 Inch			31,101	Sq. Ft.	0.24	5,598.18
11	Portland Cement Concrete Pavement—6 Inch	42,609		42,609	Sq. Ft.	0.18	3,408.72
12	Asphalt Concrete	80,000		80,000	Sq. Ft.	0.14	11,200.00
13	Penetration Oil Macadam Pavement	3,252		3,252	Lin. Ft.	0.52	1,691.04
14	Concrete Curb—6 Inch				Lin. Ft.	0.80	
15	Concrete Curb—12 Inch	40		40	Lin. Ft.	1.00	40.00
16	Concrete Curb—6 Inch with Guard				Sq. Ft.	0.25	958.00
17	Concrete Gutters	3,832		3,832	Sq. Ft.	0.13	1,170.00
18	Cement Sidewalks	9,000		9,000	Each	19.00	114.00
19	Fill Protectors	6		6			
20	Corrugated Metal Pipe Culvert—8 Inch	736		736	Lin. Ft.	1.30	956.80
21	Corrugated Metal Pipe Culvert—12 Inch	468	10	478	Lin. Ft.	2.00	956.00
22	Corrugated Metal Pipe Culvert—18 Inch	1,046		1,046	Lin. Ft.	3.00	3,138.00
23	Reinforced Concrete Pipe Culvert—10 Inch "S,"	154		154	Lin. Ft.	1.20	184.80
24	Reinforced Concrete Pipe Culvert—12 Inch "S,"	753		753	Lin. Ft.	1.50	1,129.50
25	Reinforced Concrete Pipe Culvert—15 Inch "S,"	395		395	Lin. Ft.	1.80	711.00
26	Reinforced Concrete Pipe Culvert—18 Inch "S,"				Lin. Ft.	2.00	
27	Reinforced Concrete Pipe Culvert—24 Inch "X,"	1,326		1,326	Lin. Ft.	4.40	5,834.40
28	Reinforced Concrete Pipe Culvert—36 Inch "X,"	579		579	Lin. Ft.	8.50	4,921.50
29	Vitrified Pipe Sewers—8 Inch	235		235	Lin. Ft.	1.00	235.00
30	Vitrified Pipe Sewers—12 Inch	215		215	Lin. Ft.	1.20	258.00
31	Manholes—Standard Tops	10		10	Each	90.00	900.00
32	Manholes—Inlet Tops	4		4	Each	100.00	400.00
33	Manholes—Grating Tops	3		3	Each	75.00	225.00
34	Storm Water Inlets—34 Inch Openings	1		1	Each	90.00	90.00
35	Storm Water Inlets—"B,"	4		4	Each	100.00	400.00
36	Storm Water Inlets—"C,"	8		8	Each	80.00	640.00
37	Lamp Holes—6 Inch	2		2	Each	24.00	48.00
38	Lamp Holes—8 Inch	1		1	Each	26.00	26.00
39	Lamp Holes—12 Inch	1		1	Each	35.00	35.00
40	Hand Hole	3		3	Each	30.00	90.00
41	Underdrains—8 In. Perf. Corrug. Metal Pipe	2		2	Each	60.00	120.00
42	Piping Cast Iron—6 Inch	536		536	Lin. Ft.	1.40	750.40
43	Guard Rail	653		653	Lin. Ft.	1.50	979.50
44	Pipe Hand Rail	511	98	609	Lin. Ft.	0.80	487.20
45	Riprap	128		128	Cu. Yds.	3.00	384.00
46	Metal Cribbing				Lbs.	0.13	
47	Stone or Gravel for Foundations	335	2	337	Cu. Yds.	3.00	1,011.00
48	Tunnel Construction—Type "A,"	3,311	435	3,746	Lin. Ft.	325.00	1,217,450.00
49	Tunnel Construction—Type "B,"				Lin. Ft.	400.00	
50	Gross Adits	199		199	Lin. Ft.	40.00	7,960.00
51	Ventilation Buildings—West and East Bldgs., Complete	89.4%		89.4%	Lump Sum		303,960.00
52	Ventilation Equipment—Furn. and Install. Complete	47.8%	2.5%	50.3%	Lump Sum		80,480.00
53	Mechanical Equipment—Furn. and Install. Complete	9.7%	1.8%	11.5%	Lump Sum		6,900.00
54	Electrical Equipment—Furn. and Install. Complete	17.4%	2.1%	19.5%	Lump Sum		40,950.00
55	Carbon Monoxide Detectors and Recorders—Furnishing and Installing Complete				Lump Sum		
Total Value of Work Done to Date							\$2,414,593.43
Deductions—10% of Work Done							241,459.34
Total Due to Date							2,173,134.09
Previous Payments							2,021,047.11
This Estimate							152,086.98
Deductions, Damages, Failure to Complete Within Contract Time, 7 Days at \$600.00							
Balance Due on This Estimate							\$ 148,586.98

Estimate Made by C. E. RIGGS

Checked by A. S. GEISTON

Approved J. W. BARKLEY
Chief Asst. Engr.

Approved

Approved

This Estimate Approved

WALLACE B. BOGGS

District Engineer, Joint Highway District No. 13
of the State of California

DEFENDANT'S EXHIBIT D-4

July 9, 1936

Six Companies of California,
1522 Latham Square Building,
Oakland, California.

Gentlemen :

Enclosed herewith please find Estimate No. 25 covering the period from June 1, 1936 to June 13, 1936, both dates inclusive, together with this District's check no. 2201 in your favor for the sum of \$80,715.66 in payment of the amount due you on said estimate under the terms of your contract with the District dated June 4, 1934.

The District's check no. 1934 dated June 10, 1936, which was delivered to you on that date in payment of the amount due you under Estimate No. 24, which you returned to District with your letter of purported rescission dated June 13, 1936, is also enclosed and herewith tendered to you.

Yours very truly,

JOINT HIGHWAY DISTRICT NO. 13
OF THE STATE OF CALIFORNIA

By (signed) JOHN R. HUNTER

Comptroller

JRH:MC

Enc.

[Endorsed]: U. S. Dist. Ct. N. D. Cal. No. 20101-R. Deft's Ex. No. D-4. Filed April 28, 1938: Walter B. Maling, Clerk. By J. A. Schaertzer, Deputy Clerk.

Filed With the Board of Directors of Joint Highway District No. 13 of the State of California at Meeting Held

HARRY M. STOW, Secretary
By L. V. EATON, Assistant Secretary

Estimate No. Twenty-five
Contractor—Six Companies of California, Inc.
Street—155 Sansome Street
City—San Francisco, Calif.

JOINT HIGHWAY DISTRICT NO. 13
OF THE STATE OF CALIFORNIA
1448 Webster Street
Oakland, Calif.

Estimate of Work

From June 1, 1936 to June 13, 1936

No.	Items	Total Quantities by Last Estimate	Estimate This Month	Total Quantities Estimated To Date	Units	Contract Price	Amounts at Contract Price
1	Grading	807,032		807,032	Cu. Yds.	\$	266,320.56
2	Overhaul	4,444,324	141,948	4,586,272	Sq. Yds.		22,931.36
3	Structural Excavation—Class "A,"	37,492	275	37,767	Cu. Yds.	1.20	45,320.40
4	Structural Excavation—Class "B,"	361		361	Cu. Yds.	2.00	722.00
5	Shoulders	5,400		5,400	Sq. Ft.	0.035	189.00
6	Reinforcing Steel	3,576,899	163,050	3,739,949	Lbs.	0.04	149,597.96
7	Structural Steel	263,376	6,931	270,307	Lbs.	0.05	13,515.35
8	Concrete Structures—Class "A," Concrete	12,570	38	12,608	Cu. Yds.	15.50	195,424.00
9	Concrete Structures—Class "B," Concrete	1,223.1		1,223.1	Cu. Yds.	14.50	17,734.95
10	Portland Cement Concrete Pavement—8 Inch	31,101		31,101	Sq. Ft.	0.24	5,598.18
11	Portland Cement Concrete Pavement—6 Inch	42,609		42,609	Sq. Ft.	0.08	3,408.72
12	Asphalt Concrete	80,000		80,000	Sq. Ft.	0.14	11,200.00
13	Penetration Oil Macadam Pavement		139	3,391	Sq. Ft.	0.52	1,763.32
14	Concrete Curb—6 Inch	3,252		3,391	Lm. Ft.	0.80	
15	Concrete Curb—12 Inch				Lm. Ft.	1.00	40.00
16	Concrete Curb—6 Inch with Guard	40		40	Sq. Ft.	0.25	960.50
17	Concrete Gutters	3,832	10	3,842	Sq. Ft.	0.13	1,359.02
18	Cement Sidewalks	9,000	1,454	10,454	Each	19.00	114.00
19	Fill Protectors	6		6			
20	Corrugated Metal Pipe Culvert—8 Inch	736		736	Lm. Ft.	1.30	956.80
21	Corrugated Metal Pipe Culvert—12 Inch	478		478	Lm. Ft.	2.00	956.00
22	Corrugated Metal Pipe Culvert—18 Inch	1,046		1,046	Lm. Ft.	3.00	3,138.00
23	Reinforced Concrete Pipe Culvert—10 Inch "S,"	154		154	Lm. Ft.	1.20	184.80
24	Reinforced Concrete Pipe Culvert—12 Inch "S,"	753		753	Lm. Ft.	1.50	1,129.50
25	Reinforced Concrete Pipe Culvert—15 Inch "S,"	395		395	Lm. Ft.	1.80	711.00
26	Reinforced Concrete Pipe Culvert—18 Inch "S,"				Lm. Ft.	2.00	
27	Reinforced Concrete Pipe Culvert—24 Inch "X,"	1,326		1,326	Lm. Ft.	4.40	5,834.40
28	Reinforced Concrete Pipe Culvert—36 Inch "X,"	579		579	Lm. Ft.	8.50	4,921.50
29	Vitrified Pipe Sewers—6 Inch	235		235	Lm. Ft.	1.00	235.00
30	Vitrified Pipe Sewers—8 Inch	215		215	Lm. Ft.	1.20	258.00
31	Manholes—Standard Tops	10		10	Each	90.00	900.00
32	Manholes—Inlet Tops	4		4	Each	100.00	400.00
33	Manholes—Grating Tops	3		3	Each	100.00	300.00
34	Storm Water Inlets—34 Inch Openings	1		1	Each	75.00	75.00
35	Storm Water Inlets—"B,"	4		4	Each	100.00	400.00
36	Storm Water Inlets—"Q,"	8		8	Each	80.00	640.00
37	Lamp Holes—6 Inch	2		2	Each	24.00	48.00
38	Lamp Holes—8 Inch	1		1	Each	26.00	26.00
39	Lamp Holes—12 Inch	3		3	Each	36.00	108.00
40	Hand Hole	2		2	Each	30.00	60.00
41	Underdrains—3 In. Perforated Corrugated Metal Pipe	3,002	358	3,360	Lm. Ft.	1.40	4,704.00
42	Piping Cast Iron—6 Inch				Lm. Ft.	1.50	
43	Guard Rail	653		653	Lm. Ft.	0.80	522.40
44	Pipe Hand Rail	609		609	Lm. Ft.	3.00	1,827.00
45	Elzrap	128		128	Cu. Yds.	5.00	640.00
46	Metal Cribbing				Lbs.	0.13	
47	Stone or Gravel for Foundations	337		337	Cu. Yds.	3.00	1,011.00
48	Tunnel Construction—Type "A,"	3,746	258.60	4,004.60	Lm. Ft.	325.00	1,301,495.00
49	Tunnel Construction—Type "B,"				Lm. Ft.	400.00	
50	Cross Adits	199		199	Lm. Ft.	40.00	7,960.00
51	Ventilation Buildings—West and East Buildings, Complete	89.4%			Lump Sum		303,960.00
52	Ventilation Equipment—Furn. and Install. Complete	50.3%	1.76%		Lump Sum		83,296.00
53	Mechanical Equipment—Furn. and Install. Complete	11.5%	0.50%		Lump Sum		7,200.00
54	Electrical Equipment—Furn. and Install. Complete	19.5%	0.23%		Lump Sum		41,433.00
55	Carbon Monoxide Detectors and Recorders— Furnishing and Installing Complete				Lump Sum	15,000.00	

Estimate Made by JOHN A. MORIN

Checked by A. S. GEILSTON

Approved J. W. BARKLEY
Chief Asst. Engr.

Approved

Approved

Total Value of Work Done to Date
Deductions—10% of Work Done.....
Deductions May 31 Estimate.....
Deductions, Damages Failure to Complete
Within Contract Time This Estimate 13
Days at \$500.....

Previous Payments

\$261,149.97
\$2,250,349.75
\$ 80,715.66

This Estimate Approved WALLACE B. BOGGS
District Engineer, Joint Highway District No. 13
of the State of California

ENDORSEMENT OF THIS CHECK EVIDENCES PAY-
MENT IN FULL OF ITEMS SET FORTH IN VOUCHER

OAKLAND, CALIFORNIA





April 8, 1936

View of crown area, DOWNGRADE TUNNEL,
Sta. 111+90.

Picture by Jos. W. Barkley.





U. S. DIST. CT. N. D. CAL.

No. 20101-R

Deft's

EX. No.

B-4

FILED

May 4, 1938

WALTER B. MALING, CLERK

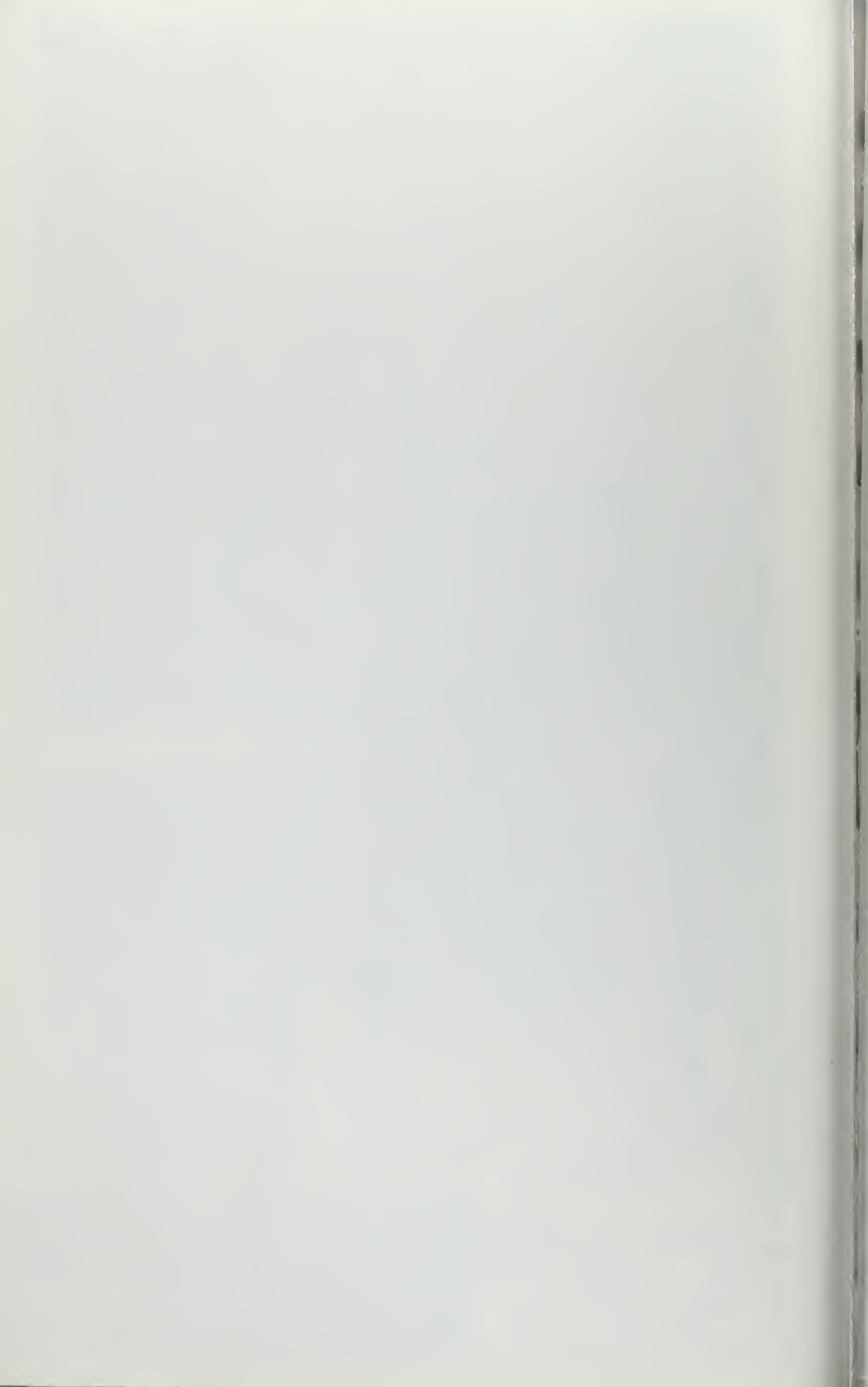
J. A. Schaerz

DEPUTY CLERK

April 8, 1936

View of crown area, DOWNGRADE TUNNEL,
Sta. 111+90.

Picture by Jos. W. Barkley.





U. S. DIST. CT. N. D. CAL.

No. 20101-R

May 30, 1936

View of Left crown, UPGRADE TUNNEL,
Sta. 112+05.

Picture by Jos. W. Barkley.

Deft's EX. No. 44-4

FILED May 4, 1938

WALTER B. MALING, CLERK

BY

J. A. Schantz

DEPUTY CLERK





U. S. DIST. CT. N. D. CAL.
No. 20101-R

April 8, 1936

Deft's EX. No. M-4-1.

FILED May 5, 1938

WALTER B. MALING, CLERK

BY

J. A. Bohart

DEPUTY CLERK

Looking Westerly from Sta. 127+08,
DOWNGRADE TUNNEL.

Picture by Jos. W. Barkley.



U. S. DIST. CT. N. D. CAL.

No. 20101-R

April 8, 1936

Looking Westerly in DownGRADE TUNNEL.
Rule is at Sta. 126+95.

FILED May 5, 1938

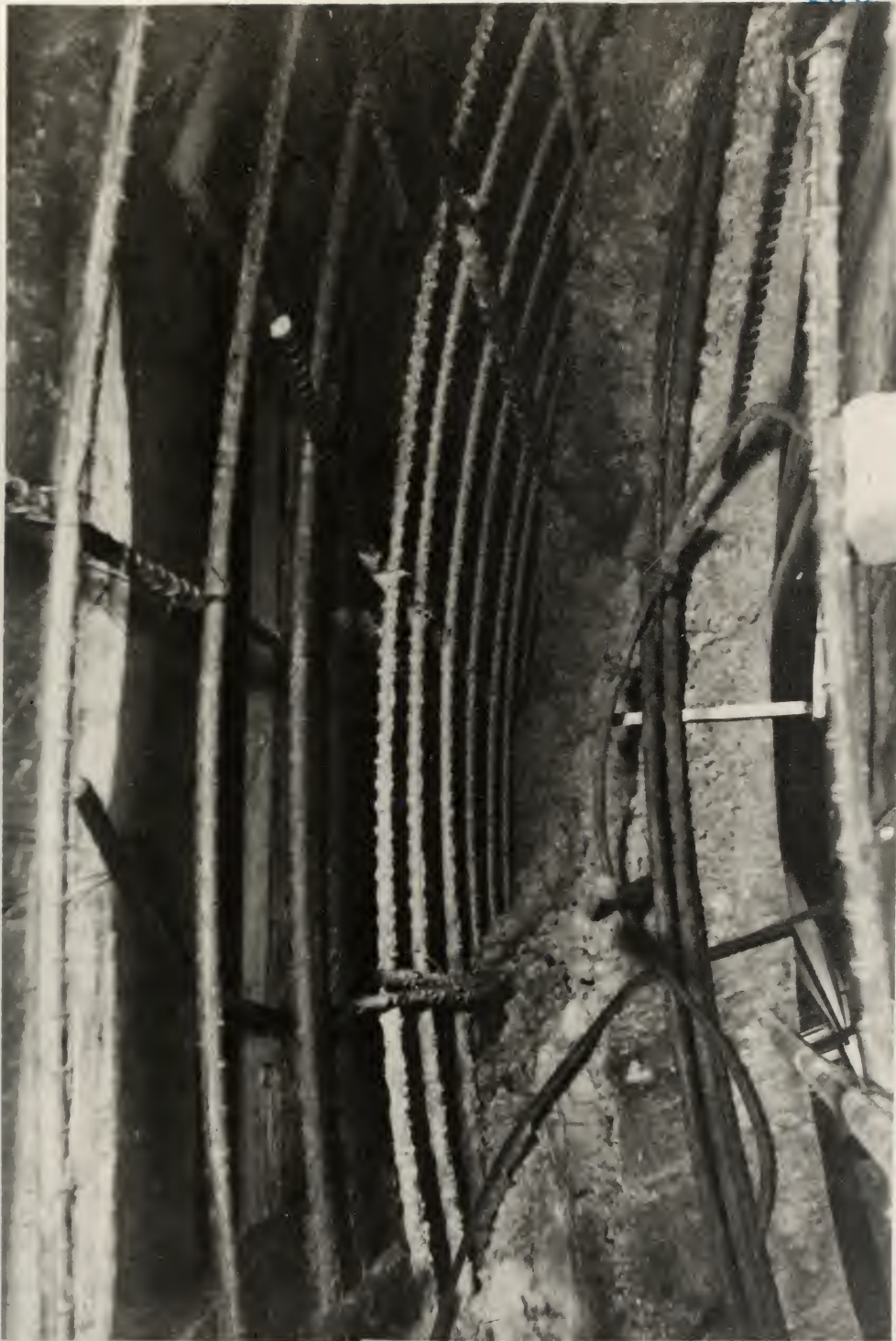
WALTER B. MALENG, CLERK

Picture by Jos. W. Barkley.

BY

W. A. Schaefer
DEPUTY CLERK





U. S. DIST. CT. N. D. OK.
No. 20101-R

May 26, 1937

Left's EX. No. N-4

FILED May 5, 1938

WALTER E. MANNING, CLERK

BY

J. A. Schaefer

View of crown at Sta. 139+39, looking
Easterly in DOWNGRADE TUNNEL.

Picture by Jos. W. Barkley.

DEFENDANT'S EX. O-4.

Grant Agreement, dated as of March 9, 1934, between Joint Highway District No. 13 of the State of California (herein called the "First Party"), and the United States of America (herein called the "Second Party").

Whereas, the Second Party, acting in conformity with Title II, National Industrial Recovery Act, (herein called the "Act"), approved June 16, 1933, is authorized and empowered to grant to any State, Municipality or other public body not in excess of 30 per centum of the cost of the labor and materials employed upon any public works project of any such State, municipality or other public body when such project has been included in the comprehensive program prepared pursuant to Section 202 of the Act; and

Whereas, the First Party has duly filed with the Second Party an application (Docket Number 2231) for a Grant to aid in financing the construction of the highway improvements described in Paragraph 2, Part One (herein called the "Project"), to be owned and operated by the First Party; and

Whereas, the First Party has represented that it (a) has full power to and will undertake and complete the Project; (b) will provide from lawful sources, funds, which, together with the amount to be represented by the Grant, will be sufficient to pay all costs thereof; and (c) will apply such Grant

solely to the cost of constructing the Project; and

Whereas, with a view to increasing employment quickly, and to aid said First Party in financing the Project, upon the foregoing representations, said Project has been included in said comprehensive program:

Now, therefore, the First Party and the Second Party hereby agree:

Part One

PROCEDURE AND GENERAL PROVISIONS

1. Amount, Use and Purpose. Subject to the terms and conditions set forth below, the Second Party will grant to the First Party an amount not to exceed 30 per centum of the cost of the labor and materials employed upon the Project, (such amount being herein called the "Grant"), but in no event to exceed in the aggregate \$1,095,000. The First Party will accept the Grant, and will construct the Project in accordance with plans and specifications submitted to and approved by the Second Party, all pursuant to Title II of the Act, the rules and regulations adopted by the Second Party relative thereto, and the Constitution and Statutes of the State of California.

2. The Project. The Project (more fully described in the application of the First Party), to aid in the financing of which the Grant will be made, is substantially as follows: The construction of 2.82 miles of main highway, 40 feet wide, with asphaltic macadam surface on rock base, in-

cluding twin bore tunnels averaging 2,910 feet in length; 3 reinforced concrete overhead structure; 1 reinforced viaduct; 1 reinforced concrete railway grade separation structure; 2 portal buildings housing ventilation equipment; and retaining walls and drainage facilities; all with such minor alterations or modifications thereof or additions thereto as may from time to time, be approved by the Second Party before or during the course of construction.

3. Preliminary Proceedings by First Party. Promptly after receipt from the Second Party of an unexecuted copy of this Agreement, the First Party will;

(a) Adopt a resolution approving this Agreement, and authorizing and directing the execution and delivery thereof by the officials designated to sign the same on its behalf;

(b) Send to the Second Party complete extracts from the minutes of the meetings of the First Party's governing body showing all proceedings taken incident to such authorization, including a copy of said resolution, all duly certified, and three signed copies of this Agreement;

(c) Commence all necessary proceedings, if any, to authorize the construction of the Project, and to obtain funds, which, together with the amount to be represented by the Grant, will be sufficient to pay all the costs of constructing the Project. The term "cost of constructing the Project", as used in this Agreement, shall include all costs of acquir-

ing all necessary lands, easements, franchises, and rights-of-way necessary to the completion and operation of the Project;

(d) Apply for all necessary authorizations, permits, licenses and approvals from Federal, State, county, municipal and other authorities for the construction of the Project;

(e) Submit to the Second Party plans, drawings, and specifications of the work and materials called for by all contracts let, or proposed to be let; the latest data as to the expected cost of the Project; a statement as to when and how it is proposed to advertise for bids and to let contracts for work; forms of bids, and copies of the advertisements thereof if heretofore advertised; a statement as to when it is proposed to acquire the necessary lands, easements, franchises, and rights-of-way; and any other details or data that may be requested by the Second Party's engineers.

4. Construction of Project. On or before the date of the execution by the Second Party of this Agreement, the First Party may, and within such time thereafter, as shall be satisfactory to the Second Party, the First Party will commence or cause to be commenced the construction of the Project and will thereafter continue the same with all practicable dispatch, in an efficient and economical manner, at a reasonable cost, and in accordance with plans, drawings, specifications and construction contracts which shall be in form and substance as approved by the Second Party, and in accord-

ance with such engineering supervision and inspection as the Second Party or its representatives may require. Except with the prior written consent of the Second Party, no materials or equipment for the Project shall be purchased by the First Party subject to any chattel mortgage or to any conditional sale or title retention agreement.

5. Completion of Proceedings. As soon as practicable after the execution by the Second Party of this Agreement, the First Party will complete all necessary proceedings and procure all necessary authorizations, permits, licenses, and approvals referred to in Paragraph 3 (c) and (d), Part One, hereof; will obtain the necessary funds, or will take appropriate proceedings to legally obtain the necessary funds, which, together with the amount to be represented by the Grant, will be sufficient to pay all costs of constructing the Project; and will lawfully acquire all lands, easements, franchises, and rights-of-way necessary to the completion of the Project, and to put the Project in operation.

6. First Requisition. After the First Party shall have complied with the requirements of Paragraphs 3 and 5, Part One, hereof, and shall have expended not less than fifty per centum of the estimated cost of constructing the Project, the First Party may, at any time thereafter, file with the Second Party a requisition, requesting the Second Party to pay to the First Party, as provided in Paragraph 7, Part One, hereof, the first portion of the Grant, such requisition to be accompanied by:

(a) One certified copy of each necessary authorization, permit, license and approval from Federal, State, county, municipal and other authorities for the construction of the Project;

(b) A signed and dated opinion of the duly qualified and acting attorney of the First Party to the effect that the First Party has complied with all the requirements of Paragraph 5, Part One, hereof, and that all such proceedings are in accordance with the Constitution and Statutes of the State of California. Such opinion shall also state that the First Party has lawfully obtained and/or arranged to obtain the funds, which, together with the amount to be represented by the Grant, may be used lawfully to pay all costs of constructing the Project;

(c) A signed and dated affidavit of a duly authorized officer of the First Party, approved by the engineer or architect in responsible charge of construction of the Project, covering in such detail as the Second Party's engineers request:

(1) The purposes for which the First Party proposes to expend such portion of the Grant;

(2) An accounting for all deposits in and expenditures from the special account or accounts referred to in Paragraph 2, Part Three, hereof;

(3) The cost of the labor and materials employed upon the Project to the date thereof;

(4) The quantities of work actually completed to the date thereof;

(5) The amount of funds expended upon the Project to the date thereof; and

(6) The amount of funds expended to the date thereof for labor and materials employed upon the Project;

(d) A signed and dated no-litigation certificate of the duly qualified and acting attorney of the First Party; and

(e) A statement by each bank in which have been deposited, in the special account or accounts referred to in Paragraph 2, Part Three, hereof, the funds for the construction of the Project, showing all deposits made therein and the balance then remaining in each such special account.

The requisition and each of the documents accompanying same shall be in form and substance satisfactory to the Second Party, and, except for those described in Paragraph 6 (a) Part One, hereof, shall bear the same date.

7. First Payment. If such requisition and documents accompanying the same are satisfactory to the Second Party, then, subject to the terms and conditions of this Agreement, upon reasonable notice to the First Party, and within a reasonable time after the receipt by the Second Party of such requisition and other documents, (but not earlier than ten days after the receipt thereof, unless the Second Party shall waive such time limit), the Second Party will pay to the First Party an amount equal to twenty-five per centum of the total cost of the labor and materials employed upon the Project, as, in the opinion of the Second Party, is shown

in all statements theretofore approved by the Second Party. Such payment will be made at the Federal Reserve Bank of San Francisco, San Francisco, California, or at such other place or places as the Second Party may designate, against delivery by the First Party of its receipt therefor.

8. Intermediate Requisitions. From time to time after such first payment, but not oftener than once in thirty days, (unless otherwise satisfactory to the Second Party), the First Party may file requisitions with the Second Party, requesting the Second Party to make additional payments on account of the Grant, each such requisition to be accompanied by:

(a) Documents corresponding to those described in Paragraph 6 (b) and (d), Part One hereof;

(b) A signed and dated affidavit of a duly authorized officer of the First Party, approved by the engineer or architect in responsible charge of construction of the Project, covering in such detail as the Second Party's engineers may request:

(1) The purposes for which the First Party proposes to expend such portion of the Grant;

(2) An accounting for all expenditures theretofore made on the Project, in so far as such expenditures have not been previously so accounted for;

(3) The cost of the labor and materials employed upon the Project to the date thereof;

(4) The quantities of work actually completed to the date thereof;

(5) The quantities of work actually completed during each of the periods between all respective requisitions;

(6) The amount of funds expended upon the Project during each such period; and

(7) The amount of funds expended during each such period for labor and materials employed upon the Project;

(c) A statement by each bank in which have been deposited, in the special account or accounts referred to in Paragraph 2, Part Three, hereof, the funds (including any previous payments on account of the Grant) for the construction of the Project, showing the balance then remaining in each special account, provided no such statement need be submitted by any bank in which no such balance remains on deposit and which has previously so certified.

The requisition and each of the documents accompanying the same shall be in form and substance satisfactory to the Second Party and shall bear the same date.

9. Intermediate Payments. If such requisition and documents accompanying same are satisfactory to the Second Party, then, subject to the terms and conditions of this Agreement, upon reasonable notice to the First Party, and within reasonable time after receipt by the Second Party of such requisition and other documents, the Second Party

will pay to the First Party an amount equal to 25 per centum of the cost of the labor and materials employed upon the Project, not exceeding, however, with all previous payments on account of the Grant, an amount equal to 25 per centum of the total cost of such labor and materials as shown in the statements theretofore approved by the Second Party, but in no event, to exceed, together with all such previous payments, in the aggregate, the sum of \$912,500. Each such payment shall be made at the place or places as hereinbefore provided for, against delivery by the First Party of its receipt therefor.

10. Final Requisition. When the Project has been completed and all costs in connection therewith have been determined, then the First Party may file the final requisition with the Second Party, requesting the Second Party to make the final payment on account of the Grant. Such requisition shall be accompanied by:

(a) Documents corresponding to those described in Paragraph 6 (b) and (d), and Paragraph 8 (c), Part One, hereof:

(b) An affidavit corresponding to that described in Paragraph 8 (b), Part One, hereof, which shall also be approved by the Government Engineer:

(c) An affidavit by the engineer or architect in responsible charge of construction of the Project, (which shall be approved by the Government Engineer), showing, among other things, and in such detail as shall be satisfactory to the Second Party;

(1) The quantities of work completed during each of the periods between the dates of each respective requisition;

(2) The cost of labor and materials employed upon the Project, the total cost of the Project, and separately, the amounts of such cost expended; and

(3) The completion of the Project in accordance with the plans and specifications therefor.

The term "Government Engineer" as used herein, shall mean the State Engineer (P.W.A.), or his duly authorized representative, or any person to whom his duties or functions may be transferred by the Federal Emergency Administration of Public Works, or its successors.

11. Final Payment. If such requisition and the documents accompanying the same are satisfactory to the Second Party, then, subject to the terms and conditions of this Agreement, upon reasonable notice to the First Party, and within a reasonable time after receipt by the Second Party of such requisition and other documents, the Second Party will pay to the First Party a sum of money, which, together with all payments theretofore made on account of the Grant, shall not exceed 30 per centum of the cost of labor and materials employed upon the Project, but in no event, to exceed, in the aggregate; together with all such previous payments, the sum of \$1,095,000. Such final payment shall be made at the place or places as hereinbefore provided

for, against delivery by the First Party of its receipt therefor.

Part Two

CONSTRUCTION CONTRACTS.

In Consideration of the Grant the First Party Covenants That:

1. Construction Contracts. All construction contracts made by the First Party and all subcontracts for work on the Project shall be subject to the rules and regulations adopted by the Second Party to carry out the purposes and control the administration of the Act, and shall contain provisions appropriate to insure that:

(a) Convict Labor. No convict labor shall be employed on the Project, and no materials manufactured or produced by convict labor shall be used on the Project.

(b) 30-Hour Week. Except in executive, administrative and supervisory positions, so far as practicable and feasible in the judgment of the Second Party, no individual directly employed on the Project shall be permitted to work more than thirty hours in any one week, but in accordance with rules and regulations from time to time made by the Second Party, this provision shall be construed to permit working time lost because of inclement weather or unavoidable delays in any one week, to be made up in the succeeding twenty days.

(c) Wages.

(1) All employees shall be paid just and reasonable wages which shall be compensation sufficient to provide, for the hours of labor as limited, a standard of living in decency and comfort;

(2) All contracts and subcontracts shall further prescribe such minimum wage rates for skilled and unskilled labor as may be determined by the Second Party and shall be subject to all rules and regulations which the Second Party may promulgate in connection therewith. Such minimum rates, if any, shall also be stated in all proposals of bids submitted, including those of subcontractors; and a clearly legible statement of all wage rates to be paid the several classes of labor employed on the work shall be posted in a prominent and easily accessible place at the site of the work. All contractors shall keep a true and accurate report of the hours worked by and the wages paid to each employee and shall furnish the Second Party with sworn statements thereof on demand;

(3) All employees shall be paid in full not less often than once each week and in lawful money of the United States of America in the full amount accrued to each individual at the time of closing of the pay roll, which shall be at the latest date practicable prior to the date of payment, and there shall be no reduction on account of goods purchased, rent, or other obligations, but such obligations shall be subject to collection only by legal process.

(d) Labor Preferences. Preference shall be given, where they are qualified, to ex-service men

with dependents, and then in the following order:

(1) To citizens of the United States and aliens who have declared their intention of becoming citizens, who are bona fide residents of the County of Alameda or the County of Contra Costa, State of California; and

(2) To citizens of the United States and aliens who have declared their intention of becoming citizens, who are bona fide residents of the State of California, provided, that these preferences shall apply only where such labor is available and qualified to perform the work to which the employment relates.

(c) Employment Services. To the fullest extent possible, labor required for the Project and appropriate to be secured through employment services, shall be chosen from lists of qualified workers submitted by local employment agencies designated by the United States Employment Service; provided, however, that organized labor, skilled and unskilled, shall not be required to register at such local employment agencies but shall be secured in the customary ways through recognized union locals. In the event, however, that qualified workers are not furnished by the union locals within 48 hours (Sundays and holidays excluded) after request is filed by the employer, such labor may be chosen from lists of qualified workers submitted by local employment agencies designated by the United States Employment Service. In the selection of

workers from lists prepared by such employment agencies and union locals, the labor preferences provided in Paragraph 1 (d), Part Two, hereof, shall be observed in accordance with such rules and regulations as the Second Party may prescribe.

(f) Human Labor. In accordance with such rules and regulations as the Second Party may prescribe, the maximum of human labor shall be used in lieu of machinery wherever practicable and consistent with sound economy and public advantage; and to the extent that the work may be accomplished at no greater expense by human labor than by the use of machinery, and labor of requisite qualifications is available, such human labor shall be employed.

(g) Accident Prevention. Every construction contract for work on the Project shall contain an undertaking to comply with all applicable provisions of the laws and building construction codes of the State, Territory, District and/or municipality in which the work is done, and with any regulations for the protection of workers which may be promulgated by the Second Party.

(h) Compensation Insurance. Every construction contract for work on the Project shall contain a provision requiring the employer to furnish compensation insurance for injured workers and to give proof of such adequate insurance satisfactory to the Second Party.

(i) **Persons Entitled to Benefits of Labor Provisions.** Every person who performs the work of a laborer or of a mechanic on the Project, or any part thereof, shall be entitled to the benefits of the labor and wage provisions hereof, regardless of any contractual relationship between the contractor or subcontractor and such laborer or mechanic. There shall be no discrimination in the selection of labor on the ground of race, creed or color.

(j) **Bonding of Contracts.** Construction contracts shall be supported by adequate surety or other bonds or security satisfactory to the Second Party for the protection of labor and material-men employed on the Project or any part thereof.

(k) **Materials.** So far as articles, materials, and supplies produced in the United States are concerned, only articles, materials and supplies produced under codes of fair competition adopted pursuant to the provisions of Title I of the Act, or under the President's Reemployment Agreement, shall be used in work on the Project, except when the Second Party determines that this requirement is not in the public interest or that the consequent cost is unreasonable. So far as feasible and practicable, and subject to the above, preference shall be given to the use of locally produced materials, if such use does not involve higher cost, inferior quality, or insufficient quantity, subject to the determination of the Second Party; but there shall be no requirements providing price differentiations for

or restricting the use of materials to those produced within the Nation or State.

(l) *Inspection and Records.* The Second Party, through its authorized agents, shall have the right to inspect all work as it progresses and shall have access to all pay rolls, records of personnel, invoices of materials, and other data relevant to the performance of the contract.

(m) *Reports.* Subject to such rules and regulations as the Second Party may prescribe, contractors and subcontractors shall make reports in triplicate to the Second Party monthly within five days after the close of each calendar month on forms to be furnished by the United States Department of Labor, which reports shall include the number of persons on their pay rolls; the aggregate amount of the pay rolls; the man-hours worked; wage scales paid to various classes of labor; and the total expenditures for materials. The contractors shall also furnish to the Second Party the names and addresses of all subcontractors at the earliest dates practicable.

(n) *Compliance With Title I of the Act.* All contractors and subcontractors must comply with the conditions prescribed in Section 7 (a) (1) and Section 7 (a) (2) of Title I of the Act.

2. *Restriction as to Contractors.* No contract shall be let to any contractor or subcontractor who has not signed and complied with the applicable

approved code of fair competition adopted under Title I of the Act for the trade or industry or subdivision thereof concerned, or, if there be no such approved code, who has not signed and complied with the provisions of the President's Reemployment Agreement.

3. Termination for Breach. The First Party will enforce compliance with all provisions of this part of this Agreement, and, as to any work done by it in connection with the construction of the Project, will itself comply therewith. All construction contracts shall provide that if any such provisions are violated by any contractor or subcontractor, the First Party may with the approval of the Second Party, and shall at the request of the Second Party, terminate by written notice to the contractor or subcontractor, the contract of such contractor or subcontractor, and have the right to take over the work and prosecute the same to completion by contract or otherwise and such contractor or subcontractor and his sureties shall be liable for any excess cost occasioned thereby and/or, if so requested by the Second Party, the First Party shall withhold from such contractor or subcontractor so much of the compensation due to him as may be necessary to pay to laborers or mechanics the difference between the rate of wages required by the contract and the rate of wages actually paid to the laborers and mechanics.

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4. Force Labor. Provided, however, that if prices in the bids are excessive, the First Party reserves the right, anything in this Agreement to the contrary notwithstanding, to apply to the Second Party for permission to do all or any part of the Project by day labor, upon such conditions as the Second Party may impose, with the understanding that all provisions in this Agreement, including those relating to labor, wages, hours and recruitment, shall be observed.

Part Three.

MISCELLANEOUS

1. Conditions Precedent to the Second Party's Obligations. The Second Party shall be under no obligation to make the Grant or any part thereof:

(a) Cost of Project. If the Second Party shall not be satisfied that the First Party will be able to construct the Project within the cost estimated at the time when the Grant was approved by it, unless, in the event that additional funds appear to the Second Party to be necessary in order to pay in full the cost of the construction of the Project, the Second Party shall be satisfied that the First Party will be able to obtain such funds, as needed, through additional borrowing or otherwise;

(b) Compliance. If the First Party shall not have complied, to the satisfaction of the Second Party, with all agreements and conditions contained

or referred to in this Agreement theretofore to be complied with by the First Party;

(c) Legal Matters. If the Second Party shall not be satisfied as to all legal matters and proceedings affecting the Project;

(d) Representations. If any representations made by the First Party in this Agreement or in the application for the Grant or any other data submitted by the First Party shall be found by the Second Party to be incorrect or incomplete in any material respect;

(e) Financial Condition. If, in the judgment of the Second Party, the financial condition of the First Party shall have changed unfavorably in a material degree from its condition as theretofore represented to the Second Party.

No waiver by the Second Party, express or implied, of any such condition shall constitute a waiver thereof as applied to any subsequent obligation of the Second Party under this Agreement.

2. Deposit of Proceeds. The First Party will deposit the Grant, and all funds which it has represented to the Second Party as on hand or hereafter available for the construction of the Project, in a bank or banks which are members of the Federal Reserve System, in a special account or accounts.

3. Disbursement of Proceeds. The First Party will expend the funds in such special account or accounts only in paying the cost of constructing the Project.

4. Information. During the construction of the Project, the First Party will furnish to the Second Party all such information and data as the Second Party's engineers may request as to the construction, cost and progress of the work.

5. Representations and Warranties. The First Party represents and warrants as follows:

(a) Authorization. All necessary authorization, permits, licenses and approvals from Federal, State, county, municipal and other authorities have been or will be obtained for the construction and operation of the Project.

(b) Litigation. No litigation or other proceedings are now pending or threatened which might adversely affect the powers and authority of the First Party in reference to the construction or financing of the Project, or the financial condition of the First Party.

(c) Fees and Commissions. No fee or commission has been or will be paid by the First Party or any of its officers, employees, agents or representatives, and no agreement to pay a fee or commission has been or will be entered into by or on behalf of the First Party or any of its officers, employees, agents or representatives, in order to secure the Grant hereunder.

(d) Affirmation. Every statement contained in this Agreement, in the application for a Grant, in any supplement thereto or amendment thereof, and any other data submitted or to be submitted to the

Second Party by or on behalf of the First Party is, or when so submitted will be, correct and complete, and no relevant fact materially affecting the Project or the financing thereof by the First Party has been or will be omitted therefrom.

6. Indemnification. The First Party will indemnify the Second Party against any loss or liability incurred by reason of any inaccuracy or incompleteness in any representation contained herein.

7. Use of Second Party's Name. Without the prior written consent of the Second Party, the First Party will not refer to this Agreement or to any Grant authorized or made hereunder as an inducement for the purchase of any securities of the First Party, and will not permit any purchaser from it of any such securities to do so.

8. Expenses. The First Party will pay all costs, charges and expenses incident to compliance with all the terms and conditions of this Agreement on its part to be complied with, including, without limiting the generality of the foregoing, the cost of preparing, executing and delivering to the Second Party all the documents required herein to be furnished by the First Party.

9. Supplemental Instruments. Upon request, the First Party will furnish such data, agreements and other instruments as the Second Party may deem necessary or desirable in connection with the performance of the obligations of the First Party under this Agreement.

10. Agreement Not for the Benefit of Third Parties. This Agreement is not for the benefit of any person or corporation other than the parties hereto.

11. Interest of Member of Congress. No Member of or Delegate to Congress shall be admitted to any share or part of this Agreement, or to any benefit to arise thereupon.

12. Miscellaneous. No rights of the First Party hereunder shall be assignable except with the prior written consent of the Second Party. All obligations of the First Party shall cease upon payment in full of all costs of constructing the Project. This Agreement contains the entire agreement between the parties, and shall be governed by and construed in accordance with the laws of the District of Columbia.

13. Undue Delay by the First Party. The Second Party shall have the right to rescind the allotment for the Project and annul any obligation to make a grant to the First Party unless the First Party shall within a reasonable time:

(a) Sign and return to the Second Party three copies of this Agreement; as provided in Paragraph 3, Part One hereof. (For the purposes of this subparagraph 13 (a) a reasonable time shall be deemed to be ten days in the ordinary course of events or such longer period as shall be allowed in the absolute discretion of the Federal Emergency Administrator of Public Works);

(b) Comply with all the provisions of Paragraph 4, Part One hereof.

The Federal Emergency Administrator of Public Works shall determine in his absolute discretion what constitutes a reasonable time within the meaning of this Paragraph 13.

In Witness Whereof, the First Party and the Second Party have respectively caused this Agreement to be duly executed as of the day and year first above written.

JOINT HIGHWAY DISTRICT
No. 13 OF THE STATE OF
CALIFORNIA.

[Seal] By THOMAS E. CALDECOTT,
President.

Attest:

HARRY M. STOW,
Secretary.

UNITED STATES OF AMERICA,
By HAROLD L. ICKES,
Federal Emergency Adminis-
trator of Public Works.

[Endorsed]: U. S. Dist. Ct. N. D. Cal., No. 20101-R. Defendant's Exhibit O-4. Filed May 26, 1938. Walter B. Maling, Clerk. J. A. Schaertzer, Deputy Clerk.

[Clerk's Note: Excerpt from stipulation of counsel re portions of record to be printed:

“(48). It is stipulated that an agreed statement of facts in the form hereto attached and marked ‘Exhibit B’ shall be printed in the record in lieu of defendant’s exhibits X-1, X-2, X-4, to X-10 both inclusive, and X-12 to X-102, both inclusive.”]

EXHIBIT “B”

AGREED STATEMENT OF FACTS PROVED BY DEFENDANT’S EXHIBITS X-1, X-2, X-4 TO X-10, BOTH INCLUSIVE, X-12 TO X-102, BOTH INCLUSIVE, WHICH EXHIBITS WERE OFFERED IN EVIDENCE BY DEFENDANT AND CROSS-COMPLAINANT AND RECEIVED IN EVIDENCE IN SUPPORT OF CROSS-COMPLAINT.

It Is Stipulated by and between all parties to this appeal that during the trial of the issues raised by the cross-complaint, defendant and cross-complainant offered and there was received in evidence defendant’s exhibits Nos. X-1, X-2, X-4 to X-10, both inclusive, X-12 to X-102, both inclusive. These are formal documents, are lengthy and will greatly enlarge and encumber the record if included in the printed record on appeal.

It Is Further Stipulated that the printing of said exhibits may be omitted from the printed

record on appeal and this agreed statement of facts be printed in the record on appeal and considered in lieu thereof.

Said exhibits proved among other things the following facts:

After plaintiff ceased work on June 13, 1936, on the contract between plaintiff and defendant, and on August 17, 1936, the board of directors of defendant adopted a resolution approving a supplement to the specifications (Defs. Ex. X-3) describing the work then remaining to be done on the project of the District, which work had been left unfinished by plaintiff, which supplement made no change in the character or extent of the work from that required by the original contract between plaintiff and defendant, as applied to the then unfinished work. Said supplement was thereafter approved by the Director of the Department of Public Works of the State of California. Thereafter, after the adoption of a proper resolution by its board of directors, defendant advertised for the time and in the manner required by law for bids to be received on September 11, 1936, for a contract for the completion of its said project. No bids were submitted to defendant under its said call for bids.

On September 23, 1936, the board of directors of defendant adopted a resolution rescinding the supplement to the specifications approved August 17, 1936, and approved another supplement to the specifications (Defs. Ex. X-11) which described the un-

finished work and divided it into eight subdivisions called in said supplement Schedules A, B, C, D, E, F, G and H, and which provided for completing the work under eight separate contracts. The character and extent of the work to be done was not changed from that required by the original contract between plaintiff and defendant as applied to the unfinished work. Thereafter, said supplement was approved by the Director of the Department of Public Works of the State of California.

Defendant duly and regularly advertised for bids to complete the work specified in each of said schedules. Bids were received for performing the work included in each of said respective schedules and contracts were let accordingly in each case to the lowest responsible bidder respectively, one contract for each schedule of work. Defendant's Ex. X-11 was a part of each of said contracts and remained a part thereof until completion of same. The defendant paid the respective contractors under the respective schedules the amount specified in defendant's Ex. X-109. Thereafter the work was completed under each of said contracts and accepted by defendant. The work required to be done under said schedules collectively, was the identical work left unfinished by plaintiff when it ceased work on defendant's project on June 13, 1936; no new or additional work was included in any of the schedules or in any call for bids or in any new contract. All contracts were duly and regularly approved and

let in accordance with the law governing said District in the doing of public work.

The following is a tabulation showing in the various columns thereof the following facts:

Column 1. Title of schedule.

Column 2. Name of contractor for the schedule, to whom the contract was awarded, and who did the work on the schedule.

Column 3. Date on which contract was made between defendant and contractor named in Column 2.

Column 4. Date of actual completion of work.

Column 5. Amount or number of dollars deducted from contract price paid to contractor for the schedule as liquidated damages.

1. Schedule	2. Name of Contractor	3. Date of Letting Contract	4. Date of Completion	5. Liquidated Damages Deducted
A	Pollock & Clifford	Nov. 9, 1936	June 22, 1937	none
B	R. G. Clifford	Dec. 24, 1936	June 22, 1937	"
C	Fred K. Du Puy	Feb. 19, 1937	Nov. 27, 1937	\$11,000
D	E. T. Lesure	Feb. 8, 1937	Dec. 1, 1937	none
E	Alta Electric & Mechanical Company, Inc.	Jan. 7, 1937	Dec. 1, 1937	"
F	Alta Electric & Mechanical Company, Inc.	Apr. 8, 1937	Sept. 4, 1937	"
G	Heafey-Moore Co.	Jan. 12, 1937	Nov. 9, 1937	"
H	Berkeley Steel Construc- tion Company, Inc.	Apr. 30, 1937	Sept. 18, 1937	"

Of the above schedules, Schedule A was for the completion of excavation of tunnels and cross adit and completion of construction of concrete arch ring lining of tunnels and cross adit.

Schedule B was for the completion of grouting in the tunnels around the concrete ring which had been installed by plaintiff.

Schedule C was for the completion of tunnel construction remaining to be completed after concrete arch ring tunnel lining was constructed and grouting was completed.

Schedule D was for the completion of the ventilation buildings.

Schedule E was the completion of ventilation equipment, mechanical equipment and electrical equipment.

Schedule F was the furnishing and installation of carbon monoxide detectors and recorders.

Schedule G was the completion of highway construction and appurtenant structures.

Schedule H was for the construction and furnishing of certain steel structures.

It Is Further Stipulated that appellants and each of them by making this stipulation do not waive and shall not be considered as waiving any objections made at the trial or exceptions taken as to the admissibility of any such exhibits, nor do said appellants or any of them waive any defenses interposed to said cross-complaint.

The Parties Further Stipulate that if at any time during this appeal it should appear that the inspection of any of said original exhibits is necessary or desirable the court may examine such orig-

inals, all of which have been transmitted by the Clerk of the District Court to the Clerk of this Court. That if it further should appear that in order to comply with any rule of this court, or to properly determine this appeal, the whole or any portion of said exhibits to which this stipulation applies are required to be printed the appellant will forthwith print and furnish a supplemental record and file the same herein and cause all due and regular certification to be made thereto, and the said defendant and cross-complainant, the appellee herein, is not to be prejudiced in any way because of this stipulation or because it consents to the omission of the printing of said exhibits or any part thereof from the printed record.

DEFENDANT'S EXHIBIT X-3.

JOINT HIGHWAY DISTRICT No. 13.
OF THE
STATE OF CALIFORNIA.

SUPPLEMENT TO SPECIFICATIONS.

For Construction of Project of the District, Including Highway, Highway Tunnel and Approaches with Appurtenant Structures, Adopted March 30, 1933, as Amended and Supplemented by Amendments and Supplements to Said Specifications Adopted January 9, 1934 and April 3, 1934 Respectively.

WALLACE B. BOGGS,
District Engineer.

DIRECTORS

Thomas E. Caldecott.....	President
Harry M. Stow.....	Secretary
Henry L. Hinman.....	Treasurer

LEGAL.

Archibald B. Tinning.....Attorney

Adopted August 17, 1936.

Specification No.....

Set No.....

JOINT HIGHWAY DISTRICT No. 13 OF THE
STATE OF CALIFORNIA.

Office of
WALLACE B. BOGGS,
District Engineer
1448 Webster Street,
Oakland California.

Adopted August 17, 1936.

Supplement to Specifications for Construction of
Project of the District, Including Highway,
Highway Tunnel and Approaches with Ap-
purtenant Structures, Adopted March 30, 1933,
as Amended and Supplemented by Amendments
and Supplements to said Specifications
Adopted January 9, 1934 and April 3, 1934 Re-
spectively.

PART I. STATEMENT OF CONDITIONS.

A Contractor under contract with Joint Highway
District No. 13 of the State of California aban-
doned work on the project of this District described
in said Specifications on or about the 13th day of
June, 1936, after performing part of the work
described in the Plans and Specifications for said
project, and left uncompleted the remainder of
such work substantially as hereinafter described.

This Supplement to said Specifications describes
the work remaining to be performed on the project

of the District. All of the said work remaining to be done is to be performed in accordance with the Plans and Specifications adopted by the Board of Directors of Joint Highway District No. 13 of the State of California on the 30th day of March, 1933, as amended and supplemented by amendments and supplements thereto adopted on January 9, 1934 and April 3, 1934, respectively, and with this supplement thereto and in strict compliance with all of the terms thereof; with the intent and purpose on the part of the Contractor and this District that the work shall be completed in every part, in every respect in accordance with the said Plans and Specifications.

The Contractor who undertakes the completion of said project shall do and perform and complete every part of the work described in said Plans and Specifications now remaining unperformed or partly completed, in order that the project shall be completed in each and every part, in accordance with said Plans and Specifications.

Prospective bidders shall examine the site of the work and all structures and parts of structures forming a part of the project and are required to satisfy themselves as to the conditions there existing, and the amount of work remaining to be done to complete the project.

The following description of the work is an approximation or estimate of the work remaining to be done and it is hereby declared and shall be

understood by all prospective bidders that the quantities set forth herein or on the Proposal Sheet, or Notice to Contractors, or in any Contract executed hereunder are approximate only, and are given as a basis for comparison of bids, and any Contractor whose proposal is accepted shall, by the terms of his contract with the District, guarantee to furnish all labor, materials, tools, and equipment necessary to the completion of all work on the project and to perform all work necessary or incidental to the construction of the portions of the project remaining to be completed as detailed, specified, and intended so as to furnish upon completion of said contract the completed project as required by the Plans and Specifications.

In order to provide a proper method for payment for the work of completing the project of the District which has been partially constructed as hereinabove mentioned, it has become necessary to provide in this supplement for a different method of payment for certain items of the work remaining to be performed, than was provided for respecting payment for said items in the Specifications heretofore adopted. Wherever, in this supplement, a basis for payment for any part of the work is provided which differs, conflicts, or is at variance with the basis of payment provided for in other parts of the Specifications, the basis for payment set forth in this supplement shall govern.

Joint Highway District No. 13 of the State of California reserves the right to increase or decrease

the amount of any part or portion of the work, or to omit such portions of the work as the District Engineer may deem it necessary or expedient to omit.

Wherever the words "Plans and Specifications" are herein used, the same shall be construed as meaning the Plans and Specifications for the Project of the District adopted by the Board of Directors of Joint Highway District No. 13 of the State of California on the 30th day of March, 1933, as amended and supplemented by the amendments and supplements thereto adopted January 9, 1934, and April 3, 1934, respectively, and by this supplement thereto.

PART II. TIME OF COMPLETION.

The entire work as described under Part III of this Supplement to the Specifications shall be completed within a period of two hundred fifty (250) calendar days from the date of execution of the contract therefor.

PART III. DESCRIPTION OF WORK REMAINING TO BE PERFORMED.

Section 1. Grading.

The work remaining to be done under "Grading" consists of the completion of the excavation and filling of the roadway prism to specified grade and cross section, the construction of drainage ditches, the removal of slides and disposing of

surplus material, and the performance of all necessary work as required by the Plans and Specifications.

It is estimated that there are approximately forty-five thousand (45,000) cubic yards of material remaining to be excavated.

Overhaul to be performed as specified is estimated to be approximately five hundred thousand (500,000) station yards.

Section 2. Excavation for Structures.

The work remaining to be done under "Excavation for Structures" consists of excavation for structures for which the excavations have not yet been made, or have not yet been completed, and the necessary backfilling thereof; also backfilling of all other structures at all points where such backfilling is not at present completed as required by the Plans and Specifications.

It is estimated that there are approximately seven hundred (700) cubic yards of excavation remaining.

Uncompleted backfilling is estimated to consist of approximately four hundred (400) cubic yards. No measurement will be made or separate payment allowed for backfilling. Full compensation for furnishing all materials, labor, tools, implements, equipment and supplies, and doing all work incidental to backfilling shall be considered as included in the price paid for "Excavation for Structures."

Section 3. Subgrade.

The work remaining to be done under "Subgrade" consists of the construction of the subgrade in all places designated as required by the Plans and Specifications where pavement has not yet been laid.

It is estimated that there are approximately seven hundred two thousand seven hundred (702,700) square feet of subgrade remaining to be constructed.

Section 4. Shoulders.

The work remaining to be done for completion of "Shoulders" consists of the construction of shoulders at locations designated in the Plans and Specifications where the same have not yet been constructed, and the completion of shoulders partly constructed, but not yet completed, as required by the Plans and Specifications.

It is estimated that there are approximately two hundred forty-five thousand (245,000) square feet of shoulders remaining to be constructed, and that there are approximately one thousand eight hundred (1,800) square feet of partially constructed shoulders to be completed by the Contractor as required by the Plans and Specifications.

Section 5. Reinforcing Steel.

The work remaining to be done consists of the furnishing and placing of "Reinforcing Steel" at all locations as required by the Plans and Specifications; and also includes the brushing and cleaning, straightening and otherwise adjusting to conform

to the Plans and Specifications of all reinforcing steel already placed, but about which concrete has not been placed, which has been exposed to the elements, and which has become rusted or coated with dirt or other foreign material, or bent or deformed, all to conform to the Plans and Specifications, and to provide reinforcing for the completed structure.

It is estimated that there are approximately eight hundred twenty-seven thousand (827,000) pounds of reinforcing steel remaining to be furnished and placed.

Section 6. Steel Structures.

The work remaining to be performed under "Steel Structures" consists of the furnishing and placing of the trusses, which support the louver frames, between the approach walls at the portals at each end of tunnel, and the furnishing and placing, in the tunnels, as required by the Plans and Specifications, of the structural steel which has not yet been installed.

It is estimated that there are approximately one hundred forty thousand (140,000) pounds of structural steel in the trusses.

It is estimated that there are approximately five hundred fifty-three thousand (553,000) pounds of structural steel to be furnished and placed in the tunnels.

Section 7. Concrete Structures

The work remaining to be done for completion of "Concrete Structures" consists of the construc-

tion, as required by the Plans and Specifications, of a retaining wall on the South side of the Service Roadway at the West Portal; coping structures at ends of Approach walls at East Portal, walls at Margarido Drive and Buena Vista place; parapet walls and rails on the Landvale Overhead structures, on Landvale Viaduct and walls, and on East Portal Approach walls.

It is estimated that there are approximately four hundred thirty (430) cubic yards of Class "A" concrete remaining to be placed in these structures. (Tunnel and building concrete remaining to be furnished and placed is described in Sections twenty-one (21) and twenty-two (22) of this Supplement.)

Section 8. Portland Cement Concrete Pavement

The work remaining to be done under "Portland Cement Concrete Pavement" consists of all of the eight inch (8") Portland cement concrete pavement at East and West Portals, as required by the Plans and Specifications.

It is estimated that there are approximately thirty-seven thousand seven hundred (37,700) square feet of eight inch (8") Portland cement concrete pavement remaining to be constructed. The six inch (6") Portland cement concrete pavement required by the Plans and Specifications has been completed.

Section 9. Penetration Oil Macadam Pavement

The work remaining to be done under "Penetra-

tion Oil Macadam Pavement" consists of the construction of all penetration oil macadam pavement as required by the Plans and Specifications which has not yet been constructed, and also includes repairs to previously completed penetration oil macadam pavement necessary to make the same conform to the requirements of the Plans and Specifications. Penetration oil macadam pavement has been constructed on the Tunnel Road, and on the westerly approach road from its intersection with Broadway northeasterly a distance of approximately eight hundred (800) lineal feet. Penetration oil macadam pavement which requires repairs is located in the vicinity of the Pedestrian Underpass on the westerly approach road, and on the Tunnel Road.

It is estimated that there are approximately six hundred sixty-five thousand (665,000) square feet of penetration oil macadam pavement remaining to be constructed as required by the Plans and Specifications.

It is estimated that there are approximately eight thousand eight hundred (8,800) square feet of penetration oil macadam pavement which must be repaired to complete the same as required by the Plans and Specifications.

Section 10. Concrete Curb and Gutter

The work remaining to be done under "Concrete Curb and Gutter" consists of the construction of the following:

Six inch (6") curb in the vicinity of Margarido Drive, Buena Vista Place, Golden Gate Avenue, and Pacific Gas and Electric Substation.

Twelve inch (12") curb in the vicinity of Sacramento Northern Railway retaining wall and in the vicinity of the East and West Tunnel portals.

Gutter in the vicinity of Margarido Drive, Buena Vista Place, Golden Gate Avenue, Sacramento Northern Railway retaining wall, and Pacific Gas and Electric Substation.

All of said curb and gutter shall be constructed as required by the Plans and Specifications.

It is estimated that there are approximately one thousand two hundred (1,200) lineal feet of six inch (6") curb, approximately nine hundred forty-five (945) lineal feet of twelve inch (12") curb, and approximately two thousand five hundred (2,500) square feet of gutter, remaining to be constructed.

Section 11. Cement Sidewalks

The work remaining to be done under "Cement Sidewalks" consists of the construction of cement sidewalks in the vicinity of Pedestrian Underpass, Margarido Drive, Buena Vista Place, Golden Gate Avenue, Sacramento Northern Railway Retaining Walls, and the East and West Tunnel Portals as required by the Plans and Specifications.

It is estimated that there are approximately nine thousand (9,000) square feet of cement sidewalks remaining to be constructed.

Section 12. Corrugated Metal Pipe Culverts

The work remaining to be done under "Corrugated Metal Pipe Culverts" consists of the furnishing and installing of eight inch (8") diameter corrugated metal pipe culverts for drainage purposes along the roadway approaches; twelve inch (12") diameter corrugated metal pipe culverts for drainage purposes in the vicinity of the East Portal of the Tunnel; and eighteen inch (18") diameter corrugated metal pipe culverts for drainage purposes on the West Approach roads, all as required by the Plans and Specifications.

Fill protectors remain to be constructed for drainage purposes on the West approach roads, as required by the Plans and Specifications.

It is estimated that there are approximately one thousand (1,000) lineal feet of eight-inch (8") diameter corrugated metal pipe culvert remaining to be furnished and installed, approximately one hundred fifty (150) lineal feet of twelve inch (12") diameter corrugated metal pipe culvert remaining to be furnished and installed, and approximately five hundred (500) lineal feet of eighteen inch (18") diameter corrugated metal pipe culvert remaining to be furnished and installed.

It is estimated that there are nine (9) fill protectors remaining to be furnished and installed.

Section 13. Reinforced Concrete Pipe Culvert

The work remaining to be done under "Reinforced Concrete Pipe Culvert" consists of the furnishing and installing of approximately one hundred ninety (190) lineal feet of twenty-four inch

(24") diameter reinforced concrete pipe culvert, extra strength (X type), as provided in the Plans and Specifications, for drainage purposes in the vicinity of the West Portal.

Section 14. Vitrified Pipe Sewers

The work remaining to be done under "Vitrified Pipe Sewers" consists of the construction, completion and repair of manholes with standard tops, manholes with inlet tops, manholes with grating tops, storm water inlets and lamp holes.

It is estimated that the following manholes are to be furnished and installed; one (1) manhole with standard top, one (1) manhole with inlet top, three (3) manholes with grating tops, two (2) storm water inlets, Type "B," three (3) storm water inlets, Type "C"; one (1) lamphole is to be repaired.

These items are to be installed in the vicinity of the East and West Tunnel portals and on the approach roadways, all as required by the Plans and Specifications.

All vitrified pipe required to be furnished and installed has been furnished and installed except that required in the Tunnel, and Ventilation Buildings.

Section 15. Underdrains

The work remaining to be done under "Underdrains" consists of furnishing and installing eight inch (8") perforated corrugated metal pipe underdrains in the vicinity of the East and West Tunnel portals and along the West Approach roadways for drainage purposes, as required by the Plans and Specifications.

It is estimated that there are approximately two thousand one hundred (2,100) lineal feet of under-drains remaining to be furnished and installed.

Section 16. Piping

The work remaining to be done under "Piping" consists of the furnishing and installing of all of the six inch (6") diameter cast iron pipe together with all fittings and accessories, as required by the Plans and Specifications, outside the Tunnels and Ventilation Buildings. Piping within the Tunnels and Ventilation Buildings is provided for in Sections twenty-one (21) and twenty-two (22) of this Supplement.

It is estimated that there are approximately two thousand twenty (2,020) lineal feet of piping, cast iron, six inch (6") diameter, remaining to be furnished and installed, outside the Tunnels and Ventilation Buildings.

Section 17. Guard Rails and Pipe Hand Rails

The work remaining to be done under "Guard Rails and Pipe Hand Rails" consists of the construction of all guard rails required by the Plans and Specifications but not yet constructed. Seven hundred (700) lineal feet of guard rails have been constructed along the Tunnel Road.

It is estimated that approximately twelve thousand (12,000) lineal feet of guard rails required by the Plans and Specifications remain to be constructed.

Pipe hand rails remain to be constructed, as required by the Plans and Specifications, on walls, in the vicinity of Golden Gate Avenue, Temescal Culvert, Pacific Gas and Electric Substation, and underpasses.

It is estimated that approximately six hundred twenty (620) lineal feet of pipe hand rail remain to be constructed.

Pipe hand rails partially completed shall be finished and completed as required by the Plans and Specifications. All pipe hand rails already in place which have been damaged shall be repaired, or new material supplied to complete the same, all as required by the Plans and Specifications.

Section 18. Rip Rap

The work remaining to be done under "Rip Rap" consists of the construction of rip rap structures in the vicinity of the Landvale Overhead structure as required by the Plans and Specifications.

It is estimated that there are approximately ninety (90) cubic yards of rip rap remaining to be constructed.

Section 19. Paint and Painting

The work remaining to be done under "Paint and Painting" consists of:

- (a) The painting, as required by the Plans and Specifications, of all structural steel not yet installed;
- (b) The completion of the painting, as required by the Plans and Specifications, of all struc-

tural steel which has not yet received the requisite number of coats;

- (c) The repainting, to the standard required by the Plans and Specifications, of all surfaces heretofore painted which have been damaged;
- (d) The painting, as required by the Plans and Specifications, of all timber guard rail which has not yet been constructed; and completion of the painting of constructed timber guard rail which has not yet received the requisite number of coats, or on which paint coats have become damaged.

The Contractor shall examine carefully and thoroughly all painted or partially painted structures, and shall satisfy himself as to conditions there existing and the amount of work remaining to be done in connection with additional coats of paint and the repainting of damaged surfaces so that same shall conform to the requirements of the Plans and Specifications.

The decision of the Engineer as to the locations and surfaces which may require additional coats of paint or repainting of damaged surfaces at any time during the progress of the work, shall be final and no extra payment will be allowed in the event the Contractor shall claim that the amount of repainting, or completion of partially painted surfaces required by the District Engineer does not correspond with that estimated by the Contractor.

Section 20. Metal Cribbing

The work remaining to be done under "Metal Cribbing" consists of furnishing and placing of the metal cribbing in the vicinity of the Landvale Viaduct as required by the Plans and Specifications.

No metal cribbing has been furnished or installed. It is estimated that there are approximately forty-six thousand (46,000) pounds of metal cribbing to be furnished and installed.

Section 21. Tunnel Construction

"Tunnel Construction" covers the construction of tunnels complete, as required by the Plans and Specifications. Some work has been performed on every portion of the tunnels, but no portion is complete. A general description of the approximate amount of the work which remains to be done to complete the "Tunnel Construction" is as follows: (for convenience, in addition to the description of the approximate lineal feet of items of work remaining to be done, the description by Engineer's Stations of approximate location of items is also given.)

1. Upgrade or South Tunnel:

(a) Excavation: Four hundred forty-six (446) lineal feet, (Stations 135+79 to 140+25), of excavation remains to be performed. Two (2) drifts have been excavated through this length. The necessary maintenance and support of these drifts to pre-

vent cave-in shall be performed by the Contractor during the progress of the excavation of this Tunnel.

(b) Concrete Arch Ring: Five hundred eighty-two (582) lineal feet of concrete arch ring remains to be constructed, (Stations 134+28 to 140+10). Footings for concrete arch ring have been constructed ahead of the full ring a distance of one hundred twenty-eight (128) lineal feet, (Stations 134+28 to 135+56).

(c) Grouting: Grouting has been completed a distance of one thousand forty-seven (1,047) lineal feet, (Stations 111+53 to 122+00), from the West end of the concrete arch ring. There remains one thousand three hundred sixteen (1,316) lineal feet, (Stations 122+00 to 134+28 and 140+10 to 140+98), of the concrete arch ring now installed around which groutings is to be placed, as required by the Plans and Specifications. Grouting, as required by the Plans and Specifications, shall be placed around all portions of the concrete arch ring hereafter constructed.

(d) Ceilings and Partitions: The ceiling or partition between the fresh air duct and the exhaust air duct has been partially constructed a distance of eight hundred eighty-one (881) lineal feet from the West end of the concrete arch ring, (Stations 111+53 to 120+34). The ceiling or partition between the roadway portion of the Tunnel and the exhaust air duct has been partially constructed a distance of eight hundred eighty-four (884) lineal

feet, (Stations 111+53 to 120+37), from the West end of the concrete arch ring.

Patching, finishing and painting of the surfaces of the concrete on the partially constructed portions of the ceilings and partitions remain to be done.

Gunitite partitions and other partition details, and air duct bulkheads, remain to be constructed in connection with these partially constructed ceilings and partitions. Exhaust port openings have been left in partially constructed ceilings. Slides, deflectors and other details required by the Plans and Specifications remain to be installed.

Completion of these partially constructed portions and the construction of ceilings and partitions in all of the remainder of the Tunnel, with all accessories, remain to be done as required by the Plans and Specifications.

(e) Side Walls and Fresh Air Flues: Side walls and fresh air flues have been partially constructed and installed a distance of eight hundred eighty-four (884) lineal feet, (Stations 111+53 to 120+37), from the Westerly end of the concrete arch ring; these walls require surface finishing, patching and painting, and flues require cleaning out, and setting and adjustment of nozzle openings, as required by the Plans and Specifications.

Finishing of partially completed walls and installation of flues and construction of flues and side walls in all remaining portions of the tunnels, as required by the Plans and Specifications, remain to be done.

(f) Curbs and Sidewalks: No part of the curbs and sidewalks required for the completion of this Tunnel has been constructed, and all remains to be done, as required by the Plans and Specifications.

(g) Roadway Pavement: No portion of the subgrade or roadway pavement required by the Plans and Specifications has been constructed, and all remains to be done.

(h) Drainage Structures and Conduits: No portions of the drainage structures and conduits required by the Plans and Specifications have been constructed, except drains installed back of and through the arch ring in the portion of the Tunnel in which the concrete arch ring and footings have been constructed; the Contractor will be required to furnish and construct all remaining portions of drainage structures and conduits, as required by the Plans and Specifications, in the portions of this Tunnel in which the concrete arch ring and footings have been constructed. In all portions of this Tunnel in which the concrete arch ring and footings have not been placed, the complete drainage structures and conduits, as required by the Plans and Specifications, shall be furnished, constructed and installed by the Contractor.

(i) Water Pipes: No part of the water pipes required to be constructed in this Tunnel has been constructed. The Contractor will be required to furnish and install all water pipes, cocks, plugs, adaptors and other necessary accessories, as re-

quired by the Plans and Specifications, in the entire length of this Tunnel.

2. Downgrade or North Tunnel:

(a) Excavation: Nine hundred sixty-two (962) lineal feet, (Stations 129+86 to 139+48), of excavation remains to be performed. One (1) drift has been excavated through on the South side; on the North side of this Tunnel a drift has been excavated a distance of approximately seven hundred eighty-two (782) lineal feet westerly from the East Portal, and a distance of approximately one hundred fifty-nine (159) lineal feet easterly from the face of the main excavation; the distance remaining unexcavated between the ends of this drift is approximately ninety-nine (99) lineal feet; the necessary **maintenance** and support of these drifts to prevent cave-in shall be performed by the Contractor during the progress of the excavation of this Tunnel.

(b) Concrete Arch Ring: One thousand eighty-nine (1,089) lineal feet of concrete arch ring remains to be constructed (Stations 128+50 to 139+39). Footings for concrete arch ring have been constructed ahead of the full ring a distance of one hundred and twenty-one (121) lineal feet, (Stations 128+50 to 129+71).

(c) Grouting: Grouting has been completed a distance of one thousand one hundred and seven (1,107) lineal feet, (Stations 111+43 to 122+50), from the West end of the concrete arch ring. There

remains six hundred seventy-nine (679) lineal feet, (Stations 122+50 to 128+50 and 139+39 to 140+18), of the concrete arch ring now installed around which grouting is to be placed, as required by the Plans and Specifications. Grouting, as required by the Plans and Specifications, shall be placed around all portions of the concrete arch ring hereafter constructed.

(d) Ceilings and Partitions: The ceiling or partition between the fresh air duct and the exhaust air duct has been partially constructed a distance of eight hundred seventy-three (873) lineal feet from the West end of the concrete arch ring, (Stations 111+43 to 120+16). The ceiling or partition between the roadway portion of the Tunnel and the exhaust air duct has been partially constructed a distance of eight hundred eighty-four (884) lineal feet, (Stations 111+43 to 120+27), from the West end of the concrete arch ring.

Patching, finishing and painting of the surfaces of the concrete on the partially constructed portions of ceilings and partitions remain to be done.

Gumite partitions and other partition details, and air duct bulkheads, remain to be constructed in connection with these partially constructed ceilings and partitions. Exhaust port openings have been left in partially constructed ceilings. Slides, deflectors and other details required by the Plans and Specifications remain to be installed.

Completion of these partially constructed portions and the construction of ceilings and parti-

tions in all of the remainder of the Tunnel, with all accessories, remains to be done, as required by the Plans and Specifications.

(e) Side Walls and Fresh Air Flues: Side walls and fresh air flues have been partially constructed and installed a distance of eight hundred eighty-four (884) lineal feet, (Stations 111+43 to 120+27), from the Westerly end of the concrete arch ring; these walls require surface finishing, patching and painting; and flues require cleaning out, and setting and adjustment of nozzle openings, as required by the Plans and Specifications.

Finishing of partially completed walls and installation of flues and construction of flues and side walls in all remaining portions of the Tunnels, as required by the Plans and Specifications, remain to be done.

(f) Curbs and Sidewalks: No part of the curbs and sidewalks required for the completion of this Tunnel has been constructed, and all remains to be done, as required by the Plans and Specifications.

(g) Roadway Pavement: No portion of the subgrade or roadway pavement required by the Plans and Specifications has been constructed, and all remains to be done.

(h) Drainage Structures and Conduits: No portions of the drainage structures and conduits required by the Plans and Specifications have been constructed, except drains installed back of and through the arch ring in the portion of the Tunnel

in which the concrete arch ring and footings have been constructed; the Contractor will be required to furnish and construct all remaining portions of drainage structures and conduits, as required by the Plans and Specifications, in the portions of this Tunnel in which the concrete arch ring and footings have been constructed. In all portions of this Tunnel in which the concrete arch ring and footings have not been placed, the complete drainage structures and conduits, as required by the Plans and Specifications, shall be furnished, constructed and installed by the Contractor.

(i) Water Pipes: No part of the water pipes required to be constructed in this Tunnel have been constructed. The Contractor will be required to furnish and install all water pipes, cocks, plugs, adaptors and other necessary accessories, as required by the Plans and Specifications, in the entire length of this Tunnel.

3. Cross Adits:

The two (2) most Westerly "Cross Adits" of the three (3) required by the Plans and Specifications have been completed. Excavation for the third cross adit has been started from the South or Upgrade Tunnel and the excavation has proceeded approximately fifteen (15) lineal feet toward the North or Downgrade Tunnel. The Contractor is required to complete this adit as required by the Plans and Specifications.

4. Completion of Tunnels:

The Contractor shall complete the Tunnels in every detail, as required by the Plans and Specifications. The general description of work remaining to be constructed and completed, as hereinabove set forth, is approximately only and, in particular, does not include a complete statement of the repairs and re-finishing that will be required to finish the work as left in place by the Contractor who abandoned the work on this project. The Contractor shall perform all work, furnish all labor, materials, tools and equipment necessary and incidental to the repair and re-finishing of work now in place, and the execution of all additional work required for the completion of the "Tunnel Construction" as specified. The omission herein of specific mention of any detail, item, or quantity shall not relieve the Contractor of his responsibility and obligation to perform all labor and furnish all materials of each and every kind necessary and to construct, complete, and finish these Tunnels in every detail as required by the Plans and Specifications; all of this is to be done without other payment therefor than the price bid for "Tunnel Construction."

5. Payment:

The price bid and the price to be paid by the District, to complete "Tunnel Construction" shall constitute full compensation to the Contractor for the completion of "Tunnel Construction" including cross adits, as required by the Plans and Specifica-

tions, except that "Reinforcing Steel" shall be paid for per pound in place, as provided in the Specifications.

Section 22. Ventilation Buildings

The "Ventilation Buildings" required by the Plans and Specifications to be constructed at the Easterly and Westerly ends of the Tunnel are partially constructed.

The Contractor shall complete the Ventilation Buildings in every detail as required by the Plans and Specifications. The Contractor shall perform all work, furnish all labor, materials, tools and equipment necessary and incidental to the repair and refinishing of work now in place, and required for the completion of the construction of these buildings in accordance with the Plans and Specifications.

The roofing over the fan room of the West ventilation building has been damaged and was rejected by the District prior to the abandonment of the work by the former Contractor. The Contractor who completes the work shall completely reconstruct this roofing, damaged roofing to be removed and new roofing to be furnished and constructed in accordance with the Plans and Specifications. The Contractor shall patch and repair defective or damaged wall surfaces and all other portions of said structures.

The foregoing general description of the work remaining to be done, constructed and completed,

as hereinabove set forth, is approximate only and, in particular, does not include a complete statement of the repairs and refinishing that will be required to complete the structures as left in place by the Contractor who abandoned the work on this project. The omission herein of specific mention of any detail, item or quantity shall not relieve the Contractor of his responsibility and obligation to provide all labor, tools, equipment, and materials of each and every kind necessary to construct, complete and finish the Ventilation Buildings in every detail as required by the Plans and Specifications. All of this is to be done without other payment therefor than the price bid for the completion of the Ventilation Buildings.

Section 23. Ventilation Equipment

The "Ventilation Equipment" required by the Plans and Specifications to be furnished and installed in the Ventilation Buildings at the Easterly and Westerly ends of the Tunnel has been partly furnished and installed.

The Contractor is required to furnish and install all of the remainder of the ventilation equipment in both of the said buildings in every detail, as required by the Plans and Specifications, and the Contractor shall perform all work and furnish all labor, tools, material, equipment and accessories necessary to complete the installation of the ventilation equipment strictly in accordance with the requirements of the Plans and Specifications.

The Contractor shall make a detailed examination

of the ventilation equipment now on the project and shall satisfy himself as to the amount and existing conditions thereof, and as to the amount of material, equipment and accessories remaining to be furnished, and work remaining to be done; and, in addition to furnishing all labor, tools, materials, equipment and accessories necessary to complete the same, the Contractor shall make all necessary repairs and adjustments to the portions of the ventilation equipment now in place, and do all things necessary in order that, at the completion of the Contract, the ventilation equipment shall be complete in every respect, and shall meet all of the requirements and tests set forth in the Plans and Specifications.

Section 24. Mechanical Equipment

The "Mechanical Equipment" required by the Plans and Specifications to be furnished and installed on the project of the District has been partly furnished and installed.

The Contractor is required to furnish and install all of the remainder of the mechanical equipment on the project in every detail, as required by the Plans and Specifications, and the Contractor shall perform all work and furnish all labor, tools, material, equipment and accessories necessary to complete the installation of the mechanical equipment strictly in accordance with the requirements of the Plans and Specifications.

The Contractor shall make a detailed examination of the mechanical equipment now on the project,

and shall satisfy himself as to the amount and existing conditions thereof, and as to the amount of material, equipment and accessories required to be furnished, and work remaining to be done; and, in addition to furnishing all labor, tools, materials, equipment and accessories necessary to complete the same, the Contractor shall make all necessary repairs and adjustments to the portions of the mechanical equipment now in place, and do all things necessary in order that, at the completion of the Contract, the mechanical equipment shall be complete in every respect, and shall meet all of the requirements and tests set forth in the Plans and Specifications.

Section 25. Electrical Equipment

The "Electrical Equipment" required by the Plans and Specifications to be furnished and installed on the project of the District has been partly furnished and installed.

The Contractor is required to furnish and install all of the remainder of the electrical equipment on the project in every detail, as required by the Plans and Specifications, and the Contractor shall perform all work and furnish all labor, tools, material, equipment and accessories necessary to complete the installation of the electrical equipment strictly in accordance with the requirements of the Plans and Specifications.

The Contractor shall make a detailed examination of the electrical equipment now on the project,

and shall satisfy himself as to the amount and existing conditions thereof, and as to the amount of material, equipment and accessories required to be furnished, and work remaining to be done; and, in addition to furnishing all labor, tools, materials, equipment and accessories necessary to complete the same, the Contractor shall make all necessary repairs and adjustments to the portions of the electrical equipment now in place, and do all things necessary in order that, at the completion of the Contract, the electrical equipment shall be complete in every respect, and shall meet all of the requirements and tests set forth in the Plans and Specifications.

Section 26. Carbon Monoxide Detectors
and Recorders

The "Carbon Monoxide Detectors and Recorders" shall be furnished and installed, as required by the Plans and Specifications.

No part of this equipment has been furnished or installed.

Section 27. Completion Painting, Repairing
Damage, Repairing Imperfect Work
and Cleaning Up

The Contractor shall perform all work, furnish all labor, tools, material and equipment necessary for finishing and completing all parts of the work in every detail, as required by the Plans and Specifications, in a workmanlike manner.

Without limiting the generality of the foregoing, and as a general description of the work required

to be done in repairing damaged and imperfect work, the Contractor shall perform all work and furnish all labor, tools, material and equipment necessary to repair and complete the partially constructed shoulders hereinbefore mentioned; to brush, clean, straighten and otherwise adjust exposed reinforcing steel as hereinbefore mentioned; to repair the lamphole hereinbefore mentioned; to complete partially completed pipe hand rails and repair damaged pipe hand rails hereinbefore mentioned; to complete the paint and painting hereinbefore mentioned; and to repair and complete any other work which is imperfect or has been damaged in any manner whatsoever; all to be performed in a manner and with the purpose that all parts of the work shall be completed in accordance with the requirements of the Plans and Specifications.

The Contractor shall also clean out all culverts and drainage channels which have become blocked or otherwise obstructed in any manner during previous construction operations or during Contractor's operations, and shall maintain and keep the same clear at all times during construction as a part of the work to be performed under the Contract; the Contractor shall also, as a part of the work to be performed under the Contract, remove all debris, construction material, construction buildings and construction equipment, whether placed there by the Contractor, or by the contractor who heretofore abandoned work on the project, from the project at the close of construction in order that the project shall be left in a clean, sightly and finished

condition throughout the entire area thereof. The Contractor shall also remove all of the debris, construction material, construction buildings and construction equipment from all areas adjacent to the project which have been occupied or used by the Contractor, or by the contractor who heretofore abandoned work on the project, during construction and leave said areas in a clean, sightly condition.

The price bid for "Completing Painting, Repairing Damage, Repairing Imperfect Work and Cleaning Up" shall constitute full compensation to the Contractor for the furnishing of all labor, tools, material and equipment and the performance of all work necessary or incidental to the completion of the above described work.

Section 28. Conditions Respecting Removal of
Construction Equipment, Construction Plant,
and Personal Property Now Located on the
Right of Way of the District

Certain construction equipment, construction plant, and other personal property owned by or in the possession of Six Companies of California, a corporation, is now located on the right of way of the District, or adjacent thereto.

Prospective bidders are hereby notified that under a guaranteed written agreement with the District, Six Companies of California will remove all said construction equipment, construction plant, and personal property from the right of way of the District, at its own cost and expense within twenty-

one (21) calendar days from and after the date fixed by the District as the day upon which bids will be received for the completion of the project, or within ten (10) calendar days from and after the date of execution of a Contract for completion of the project of the District, depending on which time gives Six Companies of California the greatest length of time to remove the same, if the Contractor to whom a contract is awarded by the District does not effect arrangements satisfactory to himself and said Six Companies of California, with said Company, for the use of said construction equipment, construction plant and other personal property, in the performance of the work.

The foregoing notification is not intended as, nor shall it be construed as a provision of this Supplement requiring or recommending that Prospective bidders effect an arrangement with said Six Companies of California for the use of said construction equipment, construction plant, and other personal property, and the same is incorporated herein for the sole purpose of advising all prospective bidders of the fact that said construction equipment, construction plant, and other personal property, will be removed from the right of way of the District, without cost to the Contractor hereunder, if, for any reason, such Contractor does not desire to use the same.

[Endorsed]: U. S. Dist. Ct. N. D. Cal. No. 20101-R. Deft's Ex. X-3. Filed June 1, 1938. Walter B. Maling, Clerk. By J. A. Schaertzer, Deputy Clerk.

DEFENDANT'S EXHIBIT X-11.

Joint Highway District No. 13 of the State of
California.

SUPPLEMENT TO SPECIFICATIONS.

For Construction of Project of the District, Including Highway, Highway Tunnel and Approaches with Appurtenant Structures, Adopted March 30, 1933, as Amended and Supplemented by Amendments and Supplements to Said Specifications Adopted January 9, 1934 and April 3, 1934, Respectively.

WALLACE B. BOGGS,

District Engineer

DIRECTORS

Thomas E. Caldecott.....President
Harry M. Stow.....Secretary
Henry L. Hinman.....Treasurer

LEGAL

Archibald B. Tinning.....Attorney

Adopted September 23, 1936.

Specification No.....

Set No.....

JOINT HIGHWAY DISTRICT No. 13 OF
THE STATE OF CALIFORNIA

Office of
WALLACE B. BOGGS
District Engineer
1448 Webster Street,
Oakland, California

Adopted September 23rd, 1936.

Supplement to Specifications for Construction of
Project of the District, Including Highway,
Highway Tunnel and Approaches with Appur-
tenant Structures, Adopted March 30, 1933, as
Amended and Supplemented by Amendments
and Supplements to Said Specifications Adopted
January 9, 1934 and April 3, 1934, Respectively.

PART I—STATEMENT OF CONDITIONS.

Section 1—General Conditions.

A contractor under contract with Joint Highway District No. 13 of the State of California abandoned work on the project of this District described in said Specifications on or about the 13th day of June, 1936, after performing part of the work described in the Plans and Specifications for said project, and left uncompleted the remainder of such work substantially as hereinafter described.

This Supplement to said Specifications describes the work remaining to be performed on the project of the District. All of the said work remaining to

be done is to be performed in accordance with the Plans and Specifications adopted by the Board of Directors of Joint Highway District No. 13 of the State of California on the 30th day of March, 1933, as amended and supplemented by amendments and supplements thereto adopted on January 9, 1934 and April 3, 1934, respectively, and with this Supplement thereto, and in strict compliance with all of the terms thereof; with the intent and purpose that the work shall be completed in every part, in every respect as required by the said Plans and Specifications.

In order to provide a method of procedure for completing the project of the District, which has been partially constructed as hereinbefore mentioned, the work remaining to be performed to complete the project has been subdivided, and the District will advertise for the tender of proposals from contractors to enter into contracts wherein the Contractor will contract with the District to perform all work, furnish all labor, materials, tools, and equipment necessary and incidental for finishing and completing the portions of the project included within each such subdivision, at such time or times as are hereafter determined upon by the District, under schedules hereinafter set forth.

The Contractor who undertakes the completion of any portion of the project included in any schedule for said portion of the project as hereinafter set forth, shall do and perform and complete every portion of the work set forth in said schedule now re-

maintaining unperformed or partly completed, in every respect in accordance with the Plans and Specifications.

Prospective bidders, under any schedule for any portion of the project, shall examine the site of the work and all structures and parts of structures to which said schedule pertains, and are required to satisfy themselves as to the conditions there existing and the amount of work remaining to be done to complete the portion of said project included within said schedule.

The description of the work hereinafter set forth is an approximation or estimate of the work remaining to be done. It is hereby declared and shall be understood by all prospective bidders that the quantities set forth herein or on any Proposal Sheet, or Notice to Contractors, or in any Contract executed hereunder for any schedule, are approximate only, and are given as a basis for comparison of bids. Any Contractor whose proposal on any schedule is accepted shall, by the terms of his Contract with the District, guarantee to furnish all labor, materials, tools and equipment and to perform all work necessary or incidental to the construction and completion of the portions of the project remaining to be completed to which said schedule applies, as detailed, specified and intended, so as to furnish upon completion of said contract the completed portion of the project included in said schedule as required by the Plans and Specifications.

Joint Highway District No. 13 of the State of California reserves the right to increase or decrease the amount of any part or portion of the work, or to omit such portions of the work as the District Engineer may deem it necessary or expedient to omit.

Wherever in this Supplement a basis for payment for any part of the work is provided which differs, conflicts or is at variance with the basis of payment provided for in other parts of the Specifications, the basis for payment set forth in this Supplement shall govern.

Wherever the words "Plans", "Specifications", "Plans and Specifications" are herein used, the same shall be construed as meaning the Plans and Specifications for the project of the District adopted by the Board of Directors of Joint Highway District No. 13 of the State of California on the 30th day of March, 1933, as amended and supplemented by the amendments and supplements thereto adopted January 9, 1934, and April 3, 1934, respectively, and by this Supplement thereto.

Part II—Description of Subdivisions of Project— Schedules for Construction.

The following is a description of the schedules into which the work remaining to be performed, and the material and equipment remaining to be furnished and supplied, to complete the project of the District, which has been partially constructed as hereinbefore mentioned, has been subdivided; the

District will advertise for separate proposals from contractors to perform all work, furnish all labor, tools, material and equipment necessary for, and incidental to, completing all parts of the work, included in each separate schedule as follows:

Schedule A—Completion of Excavation of Tunnels and Cross Adit and Completion of Construction of Concrete Arch Ring Lining of Tunnels and Cross Adit.

Under this schedule the Contractor shall complete the excavation of the tunnels and cross adit, and the construction of the concrete arch ring tunnel linings, and cross adit lining, together with the grouting around the portions of the arch ring tunnel linings which are to be constructed under this schedule, and shall furnish and install dowels and hanger connections, drainage structures and conduits required to be embedded in the concrete arch ring tunnel linings.

“Reinforcing Steel” required in the construction of the concrete arch ring tunnel linings and cross adit lining shall be furnished and installed by the Contractor under this schedule.

Schedule B—Completion of Grouting in Tunnels Around Concrete Lining Now Installed.

Under this schedule the Contractor shall complete the grouting, as required by the Plans and Specifications, around the concrete arch ring tunnel linings now installed in each tunnel, where grouting has not been completed. The portions of the concrete arch

ring tunnel linings around which the Contractor under this schedule will be required to place grouting are set forth in Section 21 of Part IV hereof.

Grouting will be measured and paid for under this schedule by the barrel of cement used in such grouting, and the price to be paid for grouting under this schedule shall constitute full compensation to the Contractor to whom a contract is awarded under this schedule, for furnishing of all labor and material, tools and equipment necessary and incidental to the performance of the work included within this schedule.

Schedule C—Completion of Tunnel Construction
Remaining to Be Completed After Concrete
Arch Ring Tunnel Lining Is Constructed and
Grouting Is Completed.

Under this schedule the Contractor shall complete the construction of ceilings and partitions, including furnishing and installing of structural steel, sidewalls and fresh air flues, curbs and sidewalks, roadway pavement, drainage structures and conduits, water pipes and all other portions of the work necessary for the completion of the partially completed tunnels throughout their entire length as required by the Plans and Specifications under "Tunnel Construction", excepting the portions thereof described in Schedule A and Schedule B hereof.

"Reinforcing Steel" required in the construction of the portions of the tunnels described in this schedule shall be furnished and installed by the Contractor under this schedule.

Portions of "Electrical Equipment" within the limits of the tunnel structures which are required to be embedded in the concrete or are required to be furnished and installed either prior to or concurrently with the placing of concrete, shall be furnished and installed by the Contractor under this schedule. Said portions of "Electrical Equipment" consist of conduits, outlet boxes, luminaire bodies, transformer cabinets and pull boxes, fire alarm and police telephone boxes, and accessories thereto, conduit crossovers, including drilling therefor, all as required by the Plans and Specifications.

Schedule D—Completion of Ventilation Buildings.

Under this schedule the Contractor shall complete the Ventilation Buildings as required by the Plans and Specifications.

Portions of "Electrical Equipment" within the limits of the ventilation building structures, which are required to be embedded in the concrete or are required to be furnished and installed either prior to or concurrently with the placing of concrete shall be furnished and installed by the Contractor under this schedule. Said portions of "Electrical Equipment" consist of conduits, outlet boxes, pull boxes, luminaire bodies, fire alarm and police telephone boxes, and accessories thereto, all as required by the Plans and Specifications.

Schedule E—Completion of Ventilation Equipment,
Mechanical Equipment, and Electrical Equip-
ment.

Under this schedule the Contractor shall complete the furnishing and installing of Ventilation Equipment, Mechanical Equipment, and Electrical Equipment, as required by the Plans and Specifications, excepting such portions of Electrical Equipment as are required to be furnished and installed under Schedule C and Schedule D hereof.

The work included in this Schedule E has been further subdivided for the purpose of obtaining alternate proposals for furnishing and installing the equipment included in each such subdivision thereof. The said subdivision of Schedule E is as follows:

Subdivision 1—Schedule E—Completion of Ventila-
tion Equipment.

Under this subdivision of this schedule, the Contractor shall complete the furnishing and installing of the Ventilation Equipment as required by the Plans and Specifications.

Subdivision 2 — Schedule E — Completion of Me-
chanical Equipment.

Under this subdivision of this schedule, the Contractor shall complete the furnishing and installing of the Mechanical Equipment as required by the Plans and Specifications.

Subdivision 3—Schedule E—Completion of Electrical equipment.

Under this subdivision of this schedule, the Contractor shall complete the furnishing and installing of the Electrical Equipment as required by the Plans and Specifications, excepting such portions of Electrical Equipment as are required to be installed under Schedule C and Schedule D hereof.

Prospective bidders under Schedule E will be required to bid upon Schedule E as a whole under an alternate proposal No. 1, and upon each and all of the hereinbefore set forth subdivisions of Schedule E as an alternate proposal No. 2.

The District reserves the right to accept or reject any or all proposals submitted under this Schedule E; to accept one or more subdivisions of alternate proposal No. 2, and to reject other subdivisions of alternate proposal No. 2, as the interest of the District may require.

Schedule F—Carbon Monoxide Detectors and Recorders.

Under this schedule the Contractor shall furnish and install Carbon Monoxide Detectors and Recorders complete as required by the Plans and Specifications.

Schedule G—Highway Construction and Appurtenant Structures.

Under this schedule the Contractor shall complete the highway approach roads and the structures thereon, outside the limits of the tunnels and ven-

tilation buildings, including all Grading, Overhaul, Excavation for Structures, Subgrade, Shoulders, Reinforcing Steel, Concrete Structures, Portland Cement Concrete Pavement, Penetration Oil Macadam Pavement, Concrete Curb and Gutter, Cement Sidewalks, Corrugated Metal Pipe Culverts, Fill Protectors, Reinforced Concrete Pipe Culvert, Vitrified Pipe Sewers, Underdrains, Piping, Guard Rails and Pipe Hand Rails, Rip Rap, Paint and Painting, Metal Cribbing, Completing Painting, Repairing Damage and Imperfect Work and Drainage, all in accordance with the Plans and Specifications.

Schedule H—Steel Structures.

Under this schedule the Contractor shall furnish and place the structural steel trusses, purlins, and connections which support the louver frames between the approach walls at the portals at each end of the tunnels, all as required by the Plans and Specifications.

Other Contracts—Cooperation Between Contractors.

The District will award contracts for the various divisions of the work described in the schedules hereinbefore set forth, and each Contractor to whom a contract is awarded by the District for the performance of the work to be performed, under any and all of said schedules, shall fully cooperate with all other Contractors on the project, and carefully fit his own work to that provided for under other contracts. No contractor shall commit, nor permit, any act which will interfere with the performance of the work of any other Contractor.

Cleanup.

Each Contractor performing work on the project of the District under any schedule or schedules hereof, shall before acceptance of the work by the District, remove from the site of the work and any and all areas adjacent thereto, occupied or used by him, all debris, excess construction material, false-work, temporary structures created, placed, used or constructed by him, in connection with the performance of his contract, so as to leave the project in a clean, orderly and sightly condition.

Part III—Time of Completion, Extensions of Time, Damages for Delay.

(a) Time of Completion.

The entire work described in each of the various schedules hereinbefore mentioned shall be completed within periods as follows:

Schedule A—One hundred eighty (180) calendar days from the date of execution of the contract therefor.

Schedule B—Sixty (60) calendar days from the date of execution of the contract therefor.

Schedule C—Two hundred (200) calendar days from the date of execution of the contract therefor.

Schedule D—One hundred fifty (150) calendar days from the date of execution of the contract therefor.

Schedule E—One hundred fifty (150) calendar days from the date of execution of the contract therefor.

Subdivision 1—Schedule E—One hundred fifty (150) calendar days from the date of execution of the contract therefor.

Subdivision 2—Schedule E—One hundred fifty (150) calendar days from the date of execution of the contract therefor.

Subdivision 3—Schedule E—One hundred fifty (150) calendar days from the date of execution of the contract therefor.

Schedule F—One hundred fifty (150) calendar days from the date of execution of the contract therefor.

Schedule G—Two hundred (200) calendar days from the date of execution of the contract therefor.

Schedule H—One hundred (100) calendar days from the date of execution of the contract therefor.

(b) Extensions of Time.

The following supplementary provisions to the Specifications relative to extension of time are inserted herein to provide a means for extending the time of completion under contracts awarded for work to be performed under the various schedules into which the work of completing the project has been subdivided, and the same do not modify, rescind, vacate or repeal any other provision of the Specifications, relating to extensions of time.

The time during which any Contractor under any contract awarded under any schedule of these Specifications, is delayed by reason of the failure of any other Contractor to complete work under another

contract, which work must be completed to enable the first mentioned Contractor to proceed with the work required to be performed under his contract shall be added to the period fixed in his contract as the period within which the work thereunder shall be completed, provided that the Board of Directors approve the written application of such first mentioned Contractor for such extension, which application must be made to the Board of Directors by such first mentioned Contractor at the time such delay first occurs, and before the expiration of the time of completion fixed in his contract, and thereafter the time for completion under such contract shall be extended for the period fixed in the resolution of the Board of Directors granting the application for such extension; provided that no Contractor shall be entitled to an extension of time for completing the work required to be performed under his contract, if at the time such delay first occurs by reason of the failure of any other Contractor to complete work, there remain portions of the work to be performed by the first mentioned Contractor upon which, in the judgment of the District Engineer, the first mentioned Contractor may proceed, without undue interference by reason of delay in the performance of the work of such other Contractor or Contractors.

(c) Damages for Delay.

All parties to all contracts awarded for the work to be performed, described in said schedules, shall

and do hereby expressly stipulate and agree that time is the essence of each of said contracts. In case the work is not completed within the time specified in any contract for any schedule hereof, or within such extensions of the contract time as may be allowed under these specifications, it is distinctly understood and agreed by each such Contractor that the Contractor shall pay the District as agreed and liquidated damages, and not as a penalty, the amounts hereinafter set forth for the various schedules, for each and every working day which may elapse between the limiting date as herein provided and the date of actual completion of the work required to be performed under each such contract; each of said sums pertaining to each contract awarded under each of said schedules, being hereby specifically agreed upon by each such Contractor, as a measure of the damage to the District by reason of delay in the completion of the work under each such contract, it being expressly stipulated and agreed by each such Contractor that it would be impracticable to estimate and ascertain the actual damages sustained by the District under such circumstances, and each such Contractor hereby agrees and consents that the amount of liquidated damages so fixed, shall be deducted and retained by the District from any money then due, or thereafter to become due such Contractor.

The stipulated amounts of agreed and liquidated

damages to be inserted as a provision in each contract to be awarded for the portion of the work of the completion of the project of the District, and included in each of said schedules, are as follows:

Schedule A—Five Hundred Dollars (\$500) per day.

Schedule B—Fifty Dollars (\$50) per day.

Schedule C—Five Hundred Dollars (\$500) per day.

Schedule D—One Hundred Dollars (\$100) per day.

Schedule E—One Hundred Dollars (\$100) per day.

Subdivision 1—Schedule E—One Hundred Dollars (\$100) per day.

Subdivision 2—Schedule E—One Hundred Dollars (\$100) per day.

Subdivision 3—Schedule E—One Hundred Dollars (\$100) per day.

Schedule F—Fifty Dollars (\$50) per day.

Schedule G—Two Hundred Fifty Dollars (\$250) per day.

Schedule H—Fifty Dollars (\$50) per day.

Part IV—Description of Work Remaining to Be Performed.

Section 1—Grading.

The work remaining to be done under “Grading” consists of the completion of the excavation and filling of the roadway prism to specified grade and

cross section, the construction of drainage ditches, the removal of slides and disposing of surplus material, and the performance of all necessary work as required by the Plans and Specifications.

It is estimated that there are approximately forty-five thousand (45,000) cubic yards of material remaining to be excavated.

Overhaul to be performed as specified is estimated to be approximately five hundred thousand (500,000) station yards.

Section 2—Excavation for Structures.

The work remaining to be done under "Excavation for Structures" consists of excavation for structures for which the excavations have not yet been made, or have not yet been completed, and the necessary backfilling thereof; also backfilling of all other structures at all points where such backfilling is not at present completed as required by the Plans and Specifications.

It is estimated that there are approximately seven hundred (700) cubic yards of excavation remaining.

Uncompleted backfilling is estimated to consist of approximately four hundred (400) cubic yards. No measurement will be made or separate payment allowed for backfilling. Full compensation for furnishing all materials, labor, tools, implements, equipment and supplies, and doing all work incidental to backfilling shall be considered as included in the price paid for "Excavation for Structures".

Section 3—Subgrade.

The work remaining to be done under “Subgrade” consists of the construction of the subgrade in all places designated as required by the Plans and Specifications where pavement has not yet been laid.

It is estimated that there are approximately seven hundred two thousand seven hundred (702,700) square feet of subgrade remaining to be constructed, outside of tunnels and ventilation buildings. (Subgrade to be constructed in tunnels and ventilation buildings is included in the work provided for in Section Twenty-one (21) and Section Twenty-two (22), of Part IV of this Supplement, respectively).

Section 4—Shoulders.

The work remaining to be done for completion of “Shoulders” consists of the construction of shoulders at locations designated in the Plans and Specifications where the same have not yet been constructed, and the completion of shoulders partly constructed, but not yet completed, as required by the Plans and Specifications.

It is estimated that there are approximately two hundred forty-five thousand (245,000) square feet of shoulders remaining to be constructed, and that there are approximately one thousand eight hundred (1,800) square feet of partially constructed shoulders to be completed by the Contractor as required by the Plans and Specifications.

Section 5—Reinforcing Steel.

The work remaining to be done consists of the furnishing and placing of "Reinforcing Steel" at all locations as required by the Plans and Specifications; and also includes the brushing and cleaning, straightening and otherwise adjusting to conform to the Plans and Specifications of all reinforcing steel already placed, but about which concrete has not been placed, which has been exposed to the elements, and which has become rusted or coated with dirt or other foreign material, or bent or deformed, all to conform to the Plans and Specifications, and to provide reinforcing for the completed structures.

It is estimated that there are approximately thirty-three thousand (33,000) pounds of reinforcing steel remaining to be furnished and placed in various structures on the approach highways, and approximately seven hundred ninety-four thousand (794,000) pounds of reinforcing steel remaining to be furnished and placed in the tunnels.

Section 6—Steel Structures.

The work remaining to be performed under "Steel Structures" consists of the furnishing and placing of the trusses, purlins, braces and connection bolts, which support the louver frames, between the approach walls at the portals at each end of tunnel, and the furnishing and placing, in the tunnels, as required by the Plans and Specifications, of the structural steel which has not yet been installed. The Contractor, before fabricating steel to be erected at

any location, shall make such field measurements as are necessary to ensure the proper dimensions and fit of such steel at the location where it is to be placed.

It is estimated that there are approximately one hundred forty thousand (140,000) pounds of structural steel in the supports for the louver frames.

(It is estimated that there are approximately five hundred fifty-three thousand (553,000) pounds of structural steel remaining to be furnished and placed in the tunnels which are included in "Tunnel Construction", Section Twenty-one (21) of Part IV of this Supplement.

Section 7—Concrete Structures.

The work remaining to be done for completion of "Concrete Structures" consists of the construction, as required by the Plans and Specifications, of a retaining wall on the south side of the service roadway at the West Portal; coping structures at ends of approach walls at East and West Portals; walls at Margarido Drive and Buena Vista Place; parapet walls and rails on the Landvale Overhead structures, on Landvale Viaduct and walls, and on East Portal approach walls.

It is estimated that there are approximately four hundred thirty (430) cubic yards of Class "A" concrete remaining to be placed in these structures. (Tunnel and ventilation building concrete remaining to be furnished and placed is included in Sections Twenty-one (21) and Twenty-two (22) of Part IV of this Supplement, respectively.)

Section 8—Portland Cement Concrete Pavement.

The work remaining to be done under "Portland Cement Concrete Pavement" consists of all of the eight inch (8") Portland cement concrete pavement at East and West Portals, as required by the Plans and Specifications.

It is estimated that there are approximately thirty-seven thousand seven hundred (37,700) square feet of eight inch (8") Portland cement concrete pavement remaining to be constructed. The six inch (6") Portland cement concrete pavement required by the Plans and Specifications has been completed. (Concrete pavement to be constructed in tunnels and ventilation buildings is included in the work provided for in Section Twenty-one (21) and Section Twenty-two (22) of Part IV of this Supplement, respectively.)

Section 9—Penetration Oil Macadam Pavement.

The work remaining to be done under "Penetration Oil Macadam Pavement" consists of the construction of all penetration oil macadam pavement as required by the Plans and Specifications which has not yet been constructed, and also includes repairs to previously completed penetration oil macadam pavement necessary to make the same conform to the requirements of the Plans and Specifications. Penetration oil macadam pavement has been constructed on the Tunnel Road, and on the westerly approach road from its intersection with Broadway northeasterly a distance of approximately eight hundred (800) lineal feet. Penetration oil macadam

pavement which requires repairs is located in the vicinity of the Pedestrian Underpass on the west-erly approach road, and on the Tunnel Road.

It is estimated that there are approximately six hundred sixty-five thousand (665,000) square feet of penetration oil macadam pavement remaining to be constructed as required by the Plans and Specifications.

It is estimated that there are approximately eight thousand eight hundred (8,800) square feet of penetration oil macadam pavement which must be repaired to complete the same as required by the Plans and Specifications.

Section 10—Concrete Curb and Gutter.

The work remaining to be done under “Concrete Curb and Gutter” consists of the construction of the following:

Six inch (6”) curb in the vicinity of Margarido Drive, Buena Vista Place, Golden Gate Avenue, and Pacific Gas and Electric Substation.

Twelve inch (12”) curb in the vicinity of Sacramento Northern Railway retaining wall and in the vicinity of the East and West portals of the tunnels.

Gutter in the vicinity of Margarido Drive, Buena Vista Place, Golden Gate Avenue, Sacramento Northern Railway retaining wall, and Pacific Gas and Electric Substation.

All of said curb and gutter shall be constructed as required by the Plans and Specifications.

It is estimated that there are approximately one thousand two hundred (1,200) lineal feet of six inch (6") curb, approximately nine hundred forty-five (945) lineal feet of twelve inch (12") curb and approximately two thousand five hundred (2,500) square feet of gutter, remaining to be constructed.

Section 11—Cement Sidewalks.

The work remaining to be done under "Cement Sidewalks" consists of the construction of cement sidewalks in the vicinity of Pedestrian Underpass, Margarido Drive, Buena Vista Place, Golden Gate Avenue, Sacramento Northern Railway Retaining Walls, and the East and West portals of the tunnels as required by the Plans and Specifications.

It is estimated that there are approximately nine thousand (9,000) square feet of cement sidewalks remaining to be constructed.

Section 12—Corrugated Metal Pipe Culverts.

The work remaining to be done under "Corrugated Metal Pipe Culverts" consists of the furnishing and installing of eight inch (8") diameter corrugated metal pipe culverts for drainage purposes along the roadway approaches; twelve inch (12") diameter corrugated metal pipe culverts for drainage purposes in the vicinity of the East Portal of the tunnel; and eighteen inch (18") diameter corrugated metal pipe culverts for drainage purposes on the West approach roads, all as required by the Plans and Specifications.

Fill protectors remain to be constructed for drainage purposes on the West approach roads, as required by the Plans and Specifications.

It is estimated that there are approximately one thousand (1,000) lineal feet of eight inch (8") diameter corrugated metal pipe culvert remaining to be furnished and installed, approximately one hundred fifty (150) lineal feet of twelve inch (12") diameter corrugated metal pipe culvert remaining to be furnished and installed, and approximately five hundred (500) lineal feet of eighteen inch (18") diameter corrugated metal pipe culvert remaining to be furnished and installed.

It is estimated that there are nine (9) fill protectors remaining to be furnished and installed.

Section 13—Reinforced Concrete Pipe Culvert.

The work remaining to be done under "Reinforced Concrete Pipe Culvert" consists of the furnishing and installing of approximately one hundred ninety (190) lineal feet of twenty-four inch (24") diameter reinforced concrete pipe culvert, extra strength (X type), as provided in the Plans and Specifications, for drainage purposes in the vicinity of the West portal of the tunnels.

Section 14—Vitrified Pipe Sewers.

The work remaining to be done under "Vitrified Pipe Sewers" consists of the construction, completion and repair of manholes with standard tops, manholes with inlet tops, manholes with grating tops, storm water inlets and lamp holes.

It is estimated that the following manholes are to be furnished and installed: one (1) manhole with standard top, one (1) manhole with inlet top, three (3) manholes with grating tops, two (2) storm water inlets, Type "B", three (3) storm water inlets, Type "C"; one (1) lamphole is to be repaired.

These items are to be installed in the vicinity of the East and West portals of the tunnels and on the approach roadways, all as required by the Plans and Specifications.

All vitrified pipe required to be furnished and installed has been furnished and installed except that required in the tunnels and ventilation buildings.

Section 15—Underdrains.

The work remaining to be done under "Underdrains" consists of furnishing and installing eight inch (8") perforated corrugated metal pipe underdrains in the vicinity of the East and West portals of the tunnels and along the West approach roadways for drainage purposes, as required by the Plans and Specifications.

It is estimated that there are approximately two thousand one hundred (2,100) lineal feet of underdrains remaining to be furnished and installed.

Section 16—Piping.

The work remaining to be done under "Piping" consists of the furnishing and installing of all of the six inch (6") diameter cast iron pipe together with all fittings and accessories, as required by the Plans

and Specifications, outside the tunnels and ventilation buildings. (Piping within the tunnels and ventilation buildings is provided for in Sections Twenty-one (21) and Twenty-two (22), Part IV of this Supplement, respectively.)

It is estimated that there are approximately two thousand twenty (2,020) lineal feet of piping, cast iron, six inch (6") diameter, remaining to be furnished and installed, outside the tunnels and ventilation buildings.

Section 17—Guard Rails and Pipe Hand Rails.

The work remaining to be done under "Guard Rails and Pipe Hand Rails" consists of the construction of all guard rails required by the Plans and Specifications but not yet constructed. Seven hundred (700) lineal feet of guard rails have been constructed along the Tunnel Road. It is estimated that approximately twelve thousand (12,000) lineal feet of guard rails required by the Plans and Specifications remain to be constructed.

Pipe hand rails remain to be constructed, as required by the Plans and Specifications, on walls, in the vicinity of Golden Gate Avenue, Temescal Culvert, Pacific Gas and Electric Substation, and underpasses.

It is estimated that approximately six hundred twenty (620) lineal feet of pipe hand rail remain to be constructed.

Pipe hand rails partially completed shall be finished and completed as required by the Plans and

Specifications. All pipe hand rails already in place which have been damaged shall be repaired, or new material supplied to complete the same, all as required by the Plans and Specifications.

Section 18—Rip Rap.

The work remaining to be done under “Rip Rap” consists of the construction of rip rap structures in the vicinity of the Landvale Overhead structure as required by the Plans and Specifications.

It is estimated that there are approximately ninety (90) cubic yards of rip rap remaining to be constructed.

Section 19—Paint and Painting.

The work remaining to be done under “Paint and Painting” consists of:

(a) The painting, as required by the Plans and Specifications, of all structural steel not yet installed;

(b) The completion of the painting, as required by the Plans and Specifications, of all structural steel which has not yet received the requisite number of coats;

(c) The repainting, to the standard required by the Plans and Specifications, of all surfaces heretofore painted which have been damaged;

(d) The painting, as required by the Plans and Specifications, of all timber guard rail which has not yet been constructed; and completion of the painting of constructed timber guard rail which has not

yet received the requisite number of coats, or on which paint coats have become damaged.

The Contractor shall examine carefully and thoroughly all painted or partially painted structures, and shall satisfy himself as to conditions there existing and the amount of work remaining to be done in connection with additional coats of paint and the repainting of damaged surfaces so that same shall conform to the requirements of the Plans and Specifications.

The decision of the District Engineer as to the locations and surfaces which may require additional coats of paint or repainting of damaged surfaces at any time during the progress of the work shall be final, and no extra payment will be allowed in the event the Contractor shall claim that the amount of repainting, or completion of partially painted surfaces required by the District Engineer does not correspond with that estimated by the Contractor.

Section 20—Metal Cribbing

The work remaining to be done under “Metal Cribbing” consists of furnishing and placing of the metal cribbing in the vicinity of the Landvale Viaduct as required by the Plans and Specifications.

No metal cribbing has been furnished or installed. It is estimated that there are approximately forty-six thousand (46,000) pounds of metal cribbing to be furnished and installed.

Section 21—Tunnel Construction

“Tunnel Construction” covers the construction of tunnels complete, as required by the Plans and Specifications. Some work has been performed on every portion of the tunnels, but no portion is complete. A general description of the approximate amount of the work which remains to be done to complete the “Tunnel Construction” is as follows: (for convenience, in addition to the description of the approximate lineal feet of items of work remaining to be done, the description by Engineer’s Stations of approximate location of items is also given).

1. Upgrade or South Tunnel

(a) Excavation: Four hundred forty-six (446) lineal feet, (Stations 135+79 to 140+25), of excavation remains to be performed. Two (2) drifts have been excavated through this length. The necessary maintenance and support of these drifts to prevent cave-in shall be performed by the Contractor during the progress of the excavation of this tunnel.

(b) Concrete Arch Ring: Five hundred eighty-two (582) lineal feet of concrete arch ring remains to be constructed, (Stations 134+28 to 140+10). Footings for concrete arch ring have been constructed ahead of the full ring a distance of one hundred twenty-eight (128) lineal feet, (Stations 134+28 to 135+56).

(c) Grouting: Grouting has been completed a distance of one thousand forty-seven (1,047) lineal

feet, (Stations 111+53 to 122+00), from the western end of the concrete arch ring. There remains one thousand three hundred sixteen (1,316) lineal feet, (Stations 122+00 to 134+28 and 140+10 to 140+98), of the concrete arch ring now installed around which grouting is to be placed, as required by the Plans and Specifications. Grouting around the portions of the concrete arch ring now installed, but not yet grouted, includes such clearing out, and drilling out of grout holes as is necessary to place the grouting as required by the Plans and Specifications. Grouting, as required by the Plans and Specifications, shall be placed around all portions of the concrete arch ring hereafter constructed.

(d) **Ceilings and Partitions:** The ceiling or partition between the fresh air duct and the exhaust air duct has been partially constructed a distance of eight hundred eighty-one (881) lineal feet from the western end of the concrete arch ring, (Stations 111+53 to 120+34). The ceiling or partition between the roadway portion of the tunnel and the exhaust air duct has been partially constructed a distance of eight hundred eighty-four (884) lineal feet, (Stations 111+53 to 120+37), from the western end of the concrete arch ring.

Structural steel hangers and supports are partially installed easterly of these locations.

Patching, finishing and painting of the surfaces of the concrete on the partially constructed portions of the ceilings and partitions remain to be done.

Gumite partitions and other partition details, and air duct bulkheads, remain to be constructed in connection with these partially constructed ceilings and partitions. Exhaust port openings have been left in partially constructed ceilings. Slides, deflectors and other details required by the Plans and Specifications remain to be installed.

Completion of these partially constructed portions and the construction of ceilings and partitions in all of the remainder of the tunnel, with all accessories, remain to be done as required by the Plans and Specifications.

(e) Side Walls and Fresh Air Flues: Side walls and fresh air flues have been partially constructed and installed a distance of eight hundred eighty-four (884) lineal feet, (Stations 111+53 to 120+37), from the western end of the concrete arch ring; these walls require surface finishing, patching and painting, and flues require cleaning out, and setting and adjusting of nozzle openings, as required by the Plans and Specifications. Air flues for two (2) adits have been partially installed.

Finishing of partially completed walls and installation of flues and construction of flues and side walls in all remaining portions of the tunnel, as required by the Plans and Specifications, remain to be done.

(f) Curbs and Sidewalks: No part of the curbs and sidewalks required for the completion of this tunnel has been constructed, and all remains to be done, as required by the Plans and Specifications.

(g) Roadway Pavement: No portion of the subgrade or roadway pavement required by the Plans and Specifications has been constructed, and all remains to be done.

(h) Drainage Structures and Conduits: No portions of the drainage structures and conduits required by the Plans and Specifications have been constructed, except drains installed back of and through the arch ring in the portion of the tunnel in which the concrete arch ring and footings have been constructed; the Contractor will be required to furnish and construct all remaining portions of drainage structures and conduits, as required by the Plans and Specifications, in the portions of this tunnel in which the concrete arch ring and footings have been constructed. In all portions of this tunnel in which the concrete arch ring and footings have not been placed, the complete drainage structures and conduits, as required by the Plans and Specifications, shall be furnished, constructed and installed by the Contractor.

(i) Water Pipes: No part of the water pipes required to be constructed in this tunnel has been constructed. The Contractor will be required to furnish and install all water pipes, cocks, plugs, adaptors and other necessary accessories, as required by the Plans and Specifications, in the entire length of this tunnel.

2. Downgrade or North Tunnel

(a) Excavation: Nine hundred sixty-two (962) lineal feet, (Stations 129+86 to 139+48), of exca-

vation remains to be performed. One (1) drift has been excavated through on the south side of this tunnel; on the north side of this tunnel a drift has been excavated a distance of approximately seven hundred eighty-two (782) lineal feet westerly from the East Portal, and a distance of approximately one hundred fifty-nine (159) lineal feet easterly from the face of the main excavation; the distance remaining unexcavated between the ends of this drift is approximately ninety-nine (99) lineal feet; the necessary maintenance and support of these drifts to prevent cave-in shall be performed by the Contractor during the progress of the excavation of this tunnel.

(b) Concrete Arch Ring: One thousand eighty-nine (1,089) lineal feet of concrete arch ring remains to be constructed, (Stations 128+50 to 139+39). Footings for concrete arch ring have been constructed ahead of the full ring a distance of one hundred and twenty-one (121) lineal feet, (Stations 128+50 to 129+71).

(c) Grouting: Grouting has been completed a distance of one thousand one hundred and seven (1,107) lineal feet, (Stations 111+43 to 122+50), from the western end of the concrete arch ring. There remains six hundred seventy-nine (679) lineal feet, Stations 122+50 to 128+50 and 139+39 to 140+18), of the concrete arch ring now installed around which grouting is to be placed, as required by the Plans and Specifications. Grouting around

the portions of the concrete arch ring now installed, but not yet grouted, includes such clearing out, and drilling out of grout holes as is necessary to place the grouting as required by the Plans and Specifications. Grouting, as required by the Plans and specifications, shall be placed around all portions of the concrete arch ring hereafter constructed.

(d) Ceilings and Partitions: The ceiling or partition between the fresh air duct and the exhaust air duct has been partially constructed a distance of eight hundred seventy-three (873) lineal feet from the western end of the concrete arch ring, (Stations 111+43 to 120+16). The ceiling or partition between the roadway portion of the tunnel and the exhaust air duct has been partially constructed a distance of eight hundred eighty-four (884) lineal feet, (Stations 111+43 to 120+27), from the western end of the concrete arch ring.

Structural steel hangers and supports are partially installed easterly of these locations.

Patching, finishing and painting of the surfaces of the concrete on the partially constructed portions of ceilings and partitions remain to be done.

Gunite partitions and other partition details, and air duct bulkheads, remain to be constructed in connection with these partially constructed ceilings and partitions. Exhaust port openings have been left in partially constructed ceilings. Slides, deflectors and other details required by the Plans and Specifications remain to be installed.

Completion of these partially constructed portions and the construction of ceilings and partitions

in all of the remainder of the tunnel, with all accessories, remains to be done, as required by the Plans and Specifications.

(e) Side Walls and Fresh Air Flues: Side walls and fresh air flues have been partially constructed and installed a distance of eight hundred eighty-four (884) lineal feet, (Stations 111+43 to 120+27), from the western end of the concrete arch ring; these walls require surface finishing, patching and painting; and flues require cleaning out, and setting and adjustment of nozzle openings, as required by the Plans and Specifications.

Finishing of partially completed walls and installation of flues and construction of flues and side walls in all remaining portions of the tunnel, as required by the Plans and Specifications, remain to be done.

(f) Curbs and Sidewalks: No part of the curbs and sidewalks required for the completion of this tunnel has been constructed, and all remains to be done, as required by the Plans and Specifications.

(g) Roadway Pavement: No portion of the subgrade or roadway pavement required by the Plans and Specifications has been constructed, and all remains to be done.

(h) Drainage Structures and Conduits: No portions of the drainage structures and conduits required by the Plans and Specifications have been constructed, except drains installed back of and through the arch ring in the portion of the tunnel

in which the concrete arch ring and footings have been constructed; the Contractor will be required to furnish and construct all remaining portions of drainage structures and conduits, as required by the Plans and Specifications, in the portions of this tunnel in which the concrete arch ring and footings have been constructed. In all portions of this tunnel in which the concrete arch ring and footings have not been placed, the complete drainage structures and conduits, as required by the Plans and Specifications, shall be furnished, constructed and installed by the Contractor.

(i) **Water Pipes:** No part of the water pipes required to be constructed in this tunnel has been constructed. The Contractor will be required to furnish and install all water pipes, cocks, plugs, adaptors and other necessary accessories, as required by the Plans and Specifications, in the entire length of this tunnel.

3. Gross Adits

The two (2) most westerly "Cross Adits" of the three (3) required by the Plans and Specifications have been completed. Excavation for the third cross adit has been started from the South or Upgrade Tunnel and the excavation has proceeded approximately fifteen (15) lineal feet toward the North or Downgrade Tunnel. The Contractor is required to complete this adit as required by the Plans and Specifications.

4. Completion of Tunnels

The tunnels shall be completed in every detail, as required by the Plans and Specifications. Schedule A, Schedule B and Schedule C hereinbefore set forth in Part II, of this Supplement, provide for the performance of this work. The general description of work remaining to be constructed and completed, as hereinabove set forth, is approximate only. The Contractor under any Schedule shall perform all work, furnish all labor, materials, tools and equipment necessary and incidental to the completion of work now partially constructed and for the execution of all work required for the completion of the various elements of "Tunnel Construction" which have not yet been constructed, all as required by the Plans and Specifications and included in such Schedules. The omission herein of specific mention of any detail, item, or quantity shall not relieve the Contractor of his responsibility and obligation to perform all labor and furnish all materials of each and every kind necessary, and to construct, complete and finish the various elements of these tunnels included in the Schedules therefor, in every detail as required by the Plans and Specifications; all of this is to be done without other payment therefor than the prices bid for "Tunnel Construction", under each Schedule as hereinbefore provided.

5. Payment

The prices bid and the prices to be paid by the District to complete "Tunnel Construction" under Schedule A, Schedule B and Schedule C shall constitute full compensation to the Contractor for the completion of "Tunnel Construction", including "Cross Adit", as required by the Plans and Specifications, under each of said Schedules respectively, except that "Reinforcing Steel" furnished and installed under Schedule A and Schedule C shall be paid for per pound in place, as provided in the Specifications.

Section 22—Ventilation Buildings

The "Ventilation Buildings" required by the Plans and Specifications to be constructed at the eastern and western ends of the tunnel are partially constructed.

The Contractor shall complete the ventilation buildings in every detail as required by the Plans and Specifications. The Contractor shall perform all work, furnish all labor, materials, tools and equipment necessary and incidental to the repair and refinishing of work now in place, and required for the completion of the construction of these buildings in accordance with the Plans and Specifications.

The roofing over the fan room of the West ventilation building has been damaged and was rejected by the District prior to the abandonment of the work by the former contractor. The Contractor

who completes the work shall completely reconstruct this roofing, damaged roofing to be removed and new roofing to be furnished and constructed in accordance with the Plans and Specifications. The Contractor shall patch and repair defective or damaged wall surfaces and all other portions of said structures before painting.

The Contractor who completes the work shall construct, supply and furnish roadway pavement, curbs, sidewalks and all accessories in the ventilation buildings all as required by the Plans and Specifications.

The foregoing general description of the work remaining to be done, constructed and completed, as hereinabove set forth, is approximate only and, in particular, does not include a complete statement of the repairs and refinishing that will be required to complete the structures as left in place by the contractor who abandoned the work on this project. The omission herein of specific mention of any detail, item or quantity shall not relieve the Contractor of his responsibility and obligation to provide all labor, tools, equipment, and materials of each and every kind necessary to construct, complete and finish the ventilation buildings in every detail as required by the Plans and Specifications. All of this is to be done without other payment therefor than the price bid for "Completion of Ventilation Buildings".

Section 23—Ventilation Equipment

The “Ventilation Equipment” required by the Plans and Specifications to be furnished and installed in the ventilation buildings at the eastern and western ends of the tunnel has been partly furnished and installed.

The Contractor is required to furnish and install all of the remainder of the ventilation equipment in both of the said buildings in every detail, as required by the Plans and Specifications, and the Contractor shall perform all work and furnish all labor, tools, material, equipment and accessories necessary to complete the installation of the ventilation equipment strictly in accordance with the requirements of the Plans and Specifications.

The Contractor shall make a detailed examination of the ventilation equipment now on the project and shall satisfy himself as to the amount and existing conditions thereof, and as to the amount of material, equipment and accessories remaining to be furnished, and work remaining to be done; and, in addition to furnishing all labor, tools, materials, equipment and accessories necessary to complete the same, the Contractor shall make all necessary repairs and adjustments to the portions of the ventilation equipment now in place, including cleaning and relubricating bearings, and do all things necessary in order that, at the completion of the Contract, the ventilation equipment shall be complete in every respect, and shall meet

all of the requirements and tests set forth in the Plans and Specifications.

Section 24—Mechanical Equipment

The “Mechanical Equipment” required by the Plans and Specifications to be furnished and installed on the project of the District has been partly furnished and installed.

The Contractor is required to furnish and install all of the remainder of the mechanical equipment on the project in every detail, as required by the Plans and Specifications, and the Contractor shall perform all work and furnish all labor, tools, material, equipment and accessories necessary to complete the installation of the mechanical equipment strictly in accordance with the requirements of the Plans and Specifications.

The Contractor shall make a detailed examination of the mechanical equipment now on the project, and shall satisfy himself as to the amount and existing conditions thereof, and as to the amount of material, equipment and accessories required to be furnished, and work remaining to be done; and, in addition to furnishing all labor, tools, materials, equipment and accessories necessary to complete the same, the Contractor shall make all necessary repairs and adjustments to the portions of the mechanical equipment now in place, and do all things necessary in order that, at the completion of the Contract, the mechanical equipment shall be complete in every respect, and shall meet all of the re-

quirements and tests set forth in the Plans and Specifications.

Section 25—Electrical Equipment

The “Electrical Equipment” required by the Plans and Specifications to be furnished and installed on the project of the District has been partly furnished and installed. The completion of the electrical equipment has been divided into Schedule C, Schedule D, and Schedule E.

The Contractor under each Schedule last above mentioned is required to furnish and install all of the remainder of the electrical equipment included in the Schedule for which he is awarded a Contract, in every detail, as required by the Plans and Specifications, and shall perform all work and furnish all labor, tools, material, equipment and accessories necessary to complete the installation of such electrical equipment strictly in accordance with all the requirements of the Plans and Specifications.

The Contractor shall make a detailed examination of the electrical equipment now on the project, and shall satisfy himself as to the amount and existing conditions thereof, and as to the amount of material, equipment and accessories required to be furnished, and work remaining to be done under the Schedule upon which he bids; and, in addition to furnishing all labor, tools, materials, equipment and accessories necessary to complete the same, the Contractor shall make all necessary repairs and

adjustments to the portions of the electrical equipment now in place, and do all things necessary in order that, at the completion of the Contract awarded to him, the electrical equipment included therein shall be complete in every respect, and shall meet all of the requirements and tests set forth in the Plans and Specifications.

Section 26—Carbon Monoxide Detectors and
Recorders

The “Carbon Monoxide Detectors and Recorders” shall be furnished and installed, as required by the Plans and Specifications.

No part of this equipment has been furnished or installed.

Section 27—Repairing Damage and Imperfect
Work and Drainage, on Highway Construction
and Appurtenant Structures

The Contractor to whom a Contract is awarded to perform the work included in Schedule G shall perform all work, furnish all labor, tools, materials and equipment necessary for finishing and completing all parts of the work on the highway approaches and appurtenant structures in every detail, as required by the Plans and Specifications.

Without limiting the generality of the foregoing, and as a general description of the work required to be done in repairing damaged and imperfect work on said portions of the project, the Contractor shall perform all work and furnish all labor, tools,

material and equipment necessary to repair and complete the partially constructed shoulders hereinbefore mentioned, to repair penetration oil macadam pavement hereinbefore mentioned, to complete and repair curbs and gutters previously constructed so as to make the same conform to the Plans and Specifications, to brush, clean, straighten and otherwise adjust exposed reinforcing steel as hereinbefore mentioned, to repair the lamphole hereinbefore mentioned, to complete partially completed pipe hand rails and repair damaged pipe hand rails hereinbefore mentioned, to complete the paint and painting, of work included in Schedule G, to clean out all culverts and drainage channels which have become blocked or otherwise obstructed in any manner during previous construction operations or during Contractor's operations, and to maintain and keep the same clear at all times during construction as a part of the work to be performed under the Contract awarded under said Schedule G. All of the work described in this section of Part IV hereof, is to be performed by the Contractor in a manner, and with the purpose that all parts of the work included in Schedule G hereof, shall be completed in accordance with the requirements of the Plans and Specifications.

The price bid for "Repairing Damage and Imperfect Work and Drainage, on Highway Construction and Appurtenant Structures" shall constitute full compensation to the Contractor for the furnish-

ing of all labor, tools, material and equipment and the performance of all work necessary or incidental to the completion of the above described work.

PART V—PAYMENTS

(a) Partial Payments

Payments will be made only upon the certificate of the District Engineer for work actually performed. The District Engineer shall measure the work on or about the first day of each month and at the time of the completion of the work, and shall render a certificate on or about the tenth day of each month and at the completion of the work, stating the amount of work performed during the previous calendar month, and during the current month, at the time of completion. The Contractor shall then, at the times above specified, be entitled to receive a payment from the District in the amount of seventy-five percent (75%) of the amount specified in said District Engineer's certificate, provided that no such estimate or payment shall be required to be made when, in the judgment of the District Engineer, the work is not proceeding in accordance with the provisions of the contract, or when, in his judgment, the total value of the work done since the last estimate amounts to less than Five Hundred Dollars (\$500.00), except the certificate and payment required at the completion of the entire work.

The acceptance by the Contractor of the final seventy-five percent (75%) payment for the completed work shall be and shall operate as a release

to the District from all claims and liability to the Contractor for anything done or furnished for or relating to the work, or for any act or neglect of the District or its agent in any way affecting the work, excepting the claim of the Contractor against the District for the moneys herein provided to be paid by the District to the Contractor thirty-five (35) days after the acceptance of the contract.

(b) Final Payments.

Thirty-five (35) days after the acceptance of the work by a certificate of acceptance duly rendered by the District Engineer and final approval and acceptance by the Board of Directors of the District, the Contractor shall be entitled to receive a payment of the balance due under this contract in the amount of twenty-five percent (25%) of the aggregate amount of all certificates of the District Engineer.

[Endorsed]: U. S. Dist. Ct. N. D. Cal. No. 20101-R. Deft's Ex. No. X-11. Filed June 1, 1938. Walter B. Maling, Clerk. By J. A. Schaertzer, Deputy Clerk.

DEFENDANT'S EXHIBIT X-111

Schedule Showing Computed Total Cost of Construction of Project Based on Unit Prices Set Forth in Contract Dated June 4, 1934, Between Six Companies of California and Joint Highway District No. 13 of the State of California, and Units of Work Performed Under All Contracts.

No.	Items	Quantities by Estimate No. 25 Six Companies of California	Quantities—Total Six Companies of California and Schedules A, B, C, D, E, F, G and H		Units	Six Companies of California Contract Prices		Amounts at Six Companies of California Contract Prices
1	Grading.....	807,032	865,370		Cu. Yds.	0.33	\$	285,572.10
2	Overhaul.....	4,586,272	5,716,795		Sta. Yds.	0.005		28,583.98
3	Structural Excavation—Class "A".....	37,767	39,062.89		Cu. Yds.	1.20		46,875.47
4	Structural Excavation—Class "B".....	361	361		Cu. Yds.	2.00		722.00
5	Shoulders.....	5,400	224,803		Sq. Ft.	0.035		7,868.11
6	Reinforcing Steel.....	3,739,949	4,719,214		Lbs.	0.04		188,768.56
7	Structural Steel.....	270,307	424,112		Lbs.	0.05		21,205.60
8	Concrete Structures—Class "A" Concrete.....	12,608	13,032.77		Cu. Yds.	15.50		202,007.94
9	Concrete Structures—Class "B" Concrete.....	1,223.1	1,223.1		Cu. Yds.	14.50		17,734.95
10	Portland Cement Concrete Pavement—8 inch.....	—	30,760		Sq. Ft.	0.24		7,382.40
11	Portland Cement Concrete Pavement—6 inch.....	31,101	31,101		Sq. Ft.	0.18		5,598.18
12	Asphalt Concrete.....	42,609	42,609		Sq. Ft.	0.08		3,408.72
13	Penetration Oil Macadam Pavement.....	80,000	745,612.30		Sq. Ft.	0.14		104,385.72
14	Concrete Curbs—6 inch.....	3,391	4,654.88		Lin. Ft.	0.35		2,420.54

DEFENDANT'S EXHIBIT X-111 (Continued)

No.	Items	Quantities by Estimate No. 25 Six Companies of California	Quantities—Total		Units	Six Companies of California Contract Prices	Amounts at Six Companies of California Contract Prices
			Six Companies of California and Schedules A, B, C, D, E, F, G and H	Six Companies of California Contract Prices			
15	Concrete Curbs—12 inch.....	—	1,023.50	0.80	Lin. Ft.	818.80	
16	Concrete Curbs—6 inch with guard.....	40	40	1.00	Lin. Ft.	40.00	
17	Concrete Gutters.....	3,842	6,917.93	0.25	Sq. Ft.	1,729.48	
18	Cement Sidewalks.....	10,454	21,232	0.13	Sq. Ft.	2,760.16	
19	Fill Protectors.....	6	13	19.00	Each	247.00	
20	Corrugated Metal Pipe Culvert—8 inch.....	736	1,587	1.30	Lin. Ft.	2,063.10	
21	Corrugated Metal Pipe Culvert—12 inch.....	478	742	2.00	Lin. Ft.	1,484.00	
22	Corrugated Metal Pipe Culvert—18 inch.....	1,046	2,171	3.00	Lin. Ft.	6,513.00	
23	Reinforced Concrete Pipe Culvert— 10 inch "S".....	154	154	1.20	Lin. Ft.	184.80	
24	Reinforced Concrete Pipe Culvert— 12 inch "S".....	753	753	1.50	Lin. Ft.	1,129.50	
25	Reinforced Concrete Pipe Culvert— 15 inch "S".....	395	395	1.80	Lin. Ft.	711.00	
26	Reinforced Concrete Pipe Culvert— 18 inch "S".....	—	—	2.00	Lin. Ft.	—	
27	Reinforced Concrete Pipe Culvert— 24 inch "X".....	1,326	1,831	4.40	Lin. Ft.	8,056.40	

DEFENDANT'S EXHIBIT X-111 (Continued)

No.	Items	Quantities by Estimate No. 25 Six Companies of California	Quantities—Total Six Companies of California and Schedules A, B, C, D, E, F, G and H		Units	Six Companies of California Contract Prices		Amounts at Six Companies of California Contract Prices	
28	Reinforced Concrete Pipe Culvert—								
	36 inch "X".....	579	579		Lin. Ft.	8.50		4,921.50	
29	Vitrified Pipe Sewers—6 inch.....	235	235		Lin. Ft.	1.00		235.00	
30	Vitrified Pipe Sewers—8 inch.....	215	215		Lin. Ft.	1.20		258.00	
31	Manholes—Standard Tops.....	10	13		Each	90.00		1,170.00	
32	Manholes—Inlet Tops.....	4	5		Each	100.00	\$	500.00	
33	Manholes—Grating Tops.....	3	13		Each	90.00		1,170.00	
34	Storm Water Inlets—34 inch openings.....	1	1		Each	75.00		75.00	
35	Storm Water Inlets—"B".....	4	6		Each	100.00		600.00	
36	Storm Water Inlets—"C".....	8	12		Each	80.00		960.00	
37	Lamp Holes—6 inch.....	2	2		Each	24.00		48.00	
38	Lamp Holes—8 inch.....	1	1		Each	26.00		26.00	
39	Lamp Holes—12 inch.....	3	3		Each	36.00		108.00	
40	Hand Hole.....	2	2		Each	30.00		60.00	
41	Underdrains—8 in. perf. corrug. metal pipe.....	3,360	5,709		Lin. Ft.	1.40		7,992.60	
42	Piping, Cast Iron—6 inch.....	—	1,662		Lin. Ft.	1.50		2,493.00	
43	Guard Rail.....	653	5,336		Lin. Ft.	0.80		4,268.80	

DEFENDANT'S EXHIBIT X-111 (Continued)

No.	Items	Quantities—Total			Units	Six Companies of California		Amounts at Six Companies of California
		Quantities by Estimate No. 25 Six Companies of California	Six Companies of California and Schedules A, B, C, D, E, F, G and H			Contract Prices	Contract Prices	
44	Pipe Hand Rail.....	609	1,265.40		Lin. Ft.	3.00		3,796.20
45	Riprap.....	128	216.80		Cu. Yds.	5.00		1,084.00
46	Metal Cribbing.....	—	34,851		Lbs.	0.13		4,530.63
47	Stone or Gravel for Foundations.....	337	337		Cu. Yds.	3.00		1,011.00
48	Tunnel Construction—Type "A".....	4,004.60	5,816.39		Lin. Ft.	325.00		1,890,326.75
49	Tunnel Construction—Type "B".....	—	—		Lin. Ft.	400.00		—
50	Cross Adits.....	199	322		Lin. Ft.	40.00		12,880.00
51	Ventilation Buildings—West and East Bldgs., Complete.....	89.4 %	100%		Lump Sum	340,000.00		340,000.00
52	Ventilation Equipment—Furn. and Install. Complete.....	52.06%	100%		Lump Sum	160,000.00		160,000.00
53	Mechanical Equipment—Furn. and Install. Complete.....	12.00%	100%		Lump Sum	60,000.00		60,000.00
54	Electrical Equipment—Furn. and Install. Complete.....	19.73%	100%		Lump Sum	210,000.00		210,000.00
55	Carbon Monoxide Detectors and Recorders—Furnishing and Installing Complete.....	—	100%		Lump Sum	15,000.00		15,000.00
Total.....								\$3,671,785.99

DEFENDANT'S EXHIBIT X-113
JOINT HIGHWAY DISTRICT #13
OF THE STATE OF CALIFORNIA

COST ATTRIBUTABLE TO CESSATION
OF WORK BY SIX COMPANIES OF CALIFORNIA

June 13, 1936, to November 9, 1936.

Protection and Maintenance:

Materials, Supplies and Expense—Schedule A-3	\$19,769.48
Engineering Services —Schedule B-1	4,810.19
Watchmen, Fire Bosses and Labor as per summary at foot of —Schedule B-2	23,364.66
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Total—Protection and Maintenance.....	\$47,944.33

Measuring Work and Completing Specifications:

Materials, Supplies and Expense—Schedule A-3	\$ 1,442.78
Services Measuring Work —Schedule B-3	3,639.79
Services Completing Specifications—Schedule B-3	51.65
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Total—Measuring Work and Completing Specifications	5,134.22
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Re-Advertising:

Cost of Publication of Advertising—Schedule A	1,862.45
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Insurance:

Cost of Fire, Explosion, Liability, Fidelity and Workmen's Compensation Insurance—Schedule A	14,060.85
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Total Costs—Above	\$69,001.85
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JOINT HIGHWAY DISTRICT NO. 13 OF THE STATE OF CALIFORNIA

SCHEDULE A-1

Detail of Charges for Material and Supplies, and Services Other Than Labor, Occasioned by Cessation of Work by Six Companies of California. June 13, 1936 to November 30, 1937

Voucher Numbers	Firm to Which Paid	Description of Charges	Total Amount of Voucher	Amount Charged Elsewhere	Amount Charged Herein	Protection to, and Maintenance of Property	Measuring Work and Completing Specifications	Readvertising	Insurance Costs
June, 1936, Vouchers									
1159	National Lead Company	Outside Paint and Wall Brushes	14.68		14.68	14.68			
1169	Maxwell Wholesale Hardware Company	Reflectors, Lanterns, Globes, and Oil	55.04	3.20	51.84	51.84			
1170	Plant Rubber & Asbestos Works	Fine White Hydraulic Packing	4.82		4.82	4.82			
July, 1936, Vouchers									
1185	Hamilton Signs	6-10"x3' Board Signs	6.00		6.00	6.00			
1215	California Wire Cloth Co.	4' Steel Wire Cloth 1" sp #4 48"	10.44		10.44	10.44			
1216	Kronke-Brampton Co.	1-34'x48' Tarpaulin	95.58		95.58	95.58			
1218	Bethlehem Steel Company	532 Steel Bars for Gunite Reinforcing	270.67		270.67	270.67			
1219	E. D. Bullard Company	8-Respirators & 4 Pr. Goggles	33.37		33.37	33.37			
1225	Oakland Blue Print Co.	20 Sets Blue Prints Complete Plans	668.48	9.07	659.41		659.41		
1228	DuFrane Machine & Engine Works, Inc.	Repairs to Equipment	5.00		5.00	5.00			
1230	New Claremont Garage	Repairs to Motor on Mixer	6.50		6.50	6.50			
1233	Transit Concrete, Ltd.	Gunite Sand, Cement	2,795.68		2,795.68	2,795.68			
1239	Charles S. Hughes Co.	Cement	3,484.87		3,484.87	3,484.87			
1240	Maxwell Wholesale Hardware Company	Urban Paper, Lantern Wicks, Bolts, Etc.	6.73	3.50	3.23	3.23			
1241	Associated Oil Company	Kerosene & Hi Pres Grease	31.08	16.97	14.11	14.11			
1242	Associated Oil Company	Kerosene & Oil	20.20		20.20	20.20			
August, 1936, Vouchers									
1263	DeFrane Machine & Engine Works, Inc.	Straighten Turnbuckle Units, Etc.	4.00		4.00	4.00			
1270	Tilden Lumber Company	500, 2x4-12" O. P. Wedges	17.32		17.32	17.32			
1275	Cement Gun Construction Co.	Equipment Rental and Services	718.18		718.18	718.18			
1287	The Tribune Press	150 Books (Specifications)	669.50		669.50		669.50		
1300	Pacific Pumping Company	Rent & Service Pump Equipment	63.00		63.00	63.00			
1312	The Tribune Press	200 Copies Legal Ad. of 8/28/36	5.92		5.92			5.92	
September, 1936, Vouchers									
1318	Six Companies of California	Water Charge and Rent of Equipment	3,545.71		3,545.71	3,545.71			
1323	Six Companies of California	Water Charge 7/28/36-8/27/36	80.94		80.94	80.94			
1325	Pacific Gas & Electric Co.	Light and Power	1,611.78		1,611.78	1,611.78			
1332	Six Companies of California	Small Tools and Equipment)			169.92	169.92			
		Materials and Supplies)			129.35	129.35			
		Equipment Rental)	1,146.29		847.02	847.02			
1334	The Tribune Publishing Co.	Notice to Contractors—1 Time)			49.05			49.05	
		Notice to Contractors—3 Times)	184.35		135.30			135.30	
1346	Pacific Pumping Company	Rent of Pumping Equipment	90.00		90.00	90.00			
October, 1936, Vouchers									
1362	United Iron Works	1-30" Chisel—2" Cutting Edge	3.60		3.60	3.60			
1365	The Inter-City Printing Co.	100 Sets Proposal Sheets)		24.67					
		500 Sets Supplement to Specifications)	138.54		113.87		113.87		
1367	Tilden Lumber Company	1000 2x4-12" O. P. Wedges	26.50		26.50	26.50			
1370	W. H. Parrish Co.	Hauling Timbers West to East Portal	20.25		20.25	20.25			
1372	The Tribune Publishing Co.	Notice to Contractors—3 Times	130.50		130.50			130.50	
Totals Forwarded			15,965.52	57.41	15,908.11	14,144.56	1,442.78	320.77	

DEFENDANT'S EXHIBIT X-113
JOINT HIGHWAY DISTRICT #13
OF THE STATE OF CALIFORNIA

COST ATTRIBUTABLE TO CESSATION
OF WORK BY SIX COMPANIES OF CALIFORNIA

June 13, 1936, to November 9, 1936.

Protection and Maintenance:

Materials, Supplies and Expense—Schedule A-3	\$19,769.48
Engineering Services —Schedule B-1	4,810.19
Watchmen, Fire Bosses and Labor as per summary at foot of —Schedule B-2	23,364.66
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Total—Protection and Maintenance.....	\$47,944.33

Measuring Work and Completing Specifications:

Materials, Supplies and Expense—Schedule A-3	\$ 1,442.78
Services Measuring Work —Schedule B-3	3,639.79
Services Completing Specifications—Schedule B-3	51.65
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Total—Measuring Work and Completing Specifications	5,134.22
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Re-Advertising:

Cost of Publication of Advertising—Schedule A	1,862.45
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Insurance:

Cost of Fire, Explosion, Liability, Fidelity and Workmen's Compensation Insurance—Schedule A	14,060.85
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Total Costs—Above	\$69,001.85
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Detail of Charges for Material and Supplies, and Services Other Than Labor, Occasioned by Cessation of Work by Six Companies of California. June 13, 1936 to November 30, 1937

Voucher Numbers	Firm to Which Paid	Description of Charges	Total Amount of Voucher	Amount Charged Elsewhere	Amount Charged Herein	Protection to, and Maintenance of Property	Measuring Work and Completing Specifications	Re-advertising	Insurance Costs
	Totals Brought Forward		15,965.52	57.41	15,908.11	14,144.56	1,442.78	320.77	
1378	Henry Cowell Lime and Cement Co.	Top Sand & Gravel to East Portal	44.87		44.87	44.87			
1381	Six Companies of California	Rent of Water System, \$150.00, and of Electric Plant, \$450.00, Less Return of Small Tools and Supplies, \$28.91	571.09		571.09	571.09			
1382	Six Companies of California	Water Used Aug. 27th to Sept. 29th	47.34		47.34	47.34			
1401	Pacific Pumping Company	Rent of Pumping Equipment	93.00		93.00	93.00			
	November, 1936, Vouchers								
1414	California Concrete Products Co.	24-Ft. 12" T & G Concrete Pipe	18.54		18.54	18.54			
1415	Herb Dana	Fire and Explosion Insurance	2,520		2,520.00				2,520.00
1417	Herb Dana	Fire and Explosion Insurance	3,820.00		3,820.00				3,820.00
1420	Herb Dana	P. L. & C. L. Insurance	300.00		300.00				300.00
1433	Six Companies of California	October Rental Water & Electric System	620.00		620.00	620.00			
	December, 1936, Vouchers								
1450	Pacific Gas & Electric Co.	Light and Power Aug. 1st to Nov. 11th	1,931.56		1,931.56	1,931.56			
1451	Fredrickson & Watson Constr. Co.	Slurry Base, Screenings & Asphalt Emulsion—Detour at East Portal	1,48.18		1,408.18	1,408.18			
1459	Pacific Pumping Company	November Rent of Pump Equipment	27.00		27.00	27.00			
1466	Six Companies of California	Water Charge	70.41		70.41	70.41			
1467	Six Companies of California	November Rent of Water & Electric Systems) Small Tools and Supplies)	200.96		200.00	200.00			
1470	The Tribune Publishing Co.	Notice to Contractors—Nov. 16, 23 & 30) Notice to Contractors—Nov. 20, 27 & Dec. 4) Notice to Contractors—Nov. 25 & Dec. 5 & 12)	415.26		136.17 136.17 142.92			415.26	
1471	The Post Enquirer	Notice to Contractors—Nov. 20, 27 & Dec. 4) Notice to Contractors—Nov. 25 & Dec. 5 & 12)	365.28		179.67 185.61			365.28	
1506	Maxwell Wholesale Hardware Company	Lanterns and Ruby Globes	23.18	6.80	16.38	16.38			
	January, 1937, Vouchers								
1513	State Compensation Fund	Compensation Insurance 11/21/35-11/21/36	4,544.24	1,957.16	2,587.08				2,587.08
1522	Associated Oil Company	Kerosene	40.45	28.75	11.70	11.70			
	February, 1937, Vouchers								
1560	The Post Enquirer	Notice to Contractors Jan. 14, 21 & 26) 100 Copies of Notices)	180.75		177.66 3.09			180.75	
1561	The Tribune Publishing Co.	Notice to Contractors Jan. 14, 21, & 26 and 100 copies of Notice	140.67		140.67			140.67	
1568	Fredrickson & Watson Construction Co.	Asphalt Emulsion in Place	76.82		76.82	76.82			
1594	Herb Dana	P. L. and C. L. Insurance	233.94		233.94				233.94
	March, 1937, Vouchers								
1609	Herb Dana	Liability Insurance	100.00		100.00				100.00
1617	The Tribune Publishing Co.	Notice to Contractors Feb. 18 & 25th	93.67		93.67			93.67	
1648	The Tribune Publishing Co.	Notice to Contractors Mar. 19 & 26th	94.17					94.17	
	Totals Forwarded		33,946.90	2,050.12	31,896.78	19,282.41	1,442.78	1,610.57	9,561.02

DEFENDANT'S EXHIBIT X-113
JOINT HIGHWAY DISTRICT #13
OF THE STATE OF CALIFORNIA

COST ATTRIBUTABLE TO CESSATION
OF WORK BY SIX COMPANIES OF CALIFORNIA

June 13, 1936, to November 9, 1936.

Protection and Maintenance:

Materials, Supplies and Expense—Schedule A-3	\$19,769.48
Engineering Services —Schedule B-1	4,810.19
Watchmen, Fire Bosses and Labor as per summary at foot of —Schedule B-2	23,364.66

Total—Protection and Maintenance.....	\$47,944.33
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Measuring Work and Completing Specifications:

Materials, Supplies and Expense—Schedule A-3	\$ 1,442.78
Services Measuring Work —Schedule B-3	3,639.79
Services Completing Specifications—Schedule B-3	51.65

Total—Measuring Work and Completing Specifications	5,134.22
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Re-Advertising:

Cost of Publication of Advertising—Schedule A	1,862.45
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Insurance:

Cost of Fire, Explosion, Liability, Fidelity and Workmen's Compensation Insurance—Schedule A	14,060.85
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Total Costs—Above	\$69,001.85
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JOINT HIGHWAY DISTRICT NO. 13 OF THE STATE OF CALIFORNIA

Detail of Charges for Material and Supplies, and Services Other Than Labor, Occasioned by Cessation of Work by Six Companies of California. June 13, 1936 to November 30, 1937

Voucher Numbers	Firm to Which Paid	Description of Charges	Total Amount of Voucher	Amount Charged Elsewhere	Amount Charged Herein	Protection to, and Maintenance of Property	Measuring Work and Completing Specifications	Readvertising	Insurance Costs
		Totals Brought Forward	33,946.90	2,050.12	31,896.78	19,282.41	1,442.78	1,610.57	9,561.02
		April, 1937, Vouchers							
1668	The Post Enquirer	Notice to Contractors Feb. 18 & 25th) 100 Printed Slips)	156.21		153.12			156.21	
1669	The Tribune Publishing Co.	Notice to Contractors, April 1 & 8th	95.67		95.67			95.67	
1672	Herb Dana	Public Liability Insurance	1,129.52		1,129.52				1,129.52
		July, 1937, Vouchers							
1819	Herb Dana	Fire and Explosion Insurance	392.32		392.32				392.32
1835	Herb Dana	P. L. and C. L. Insurance	1,351.54		1,351.54				1,351.54
		September, 1937, Vouchers							
1935	Herb Dana	P. L. and C. L. Insurance	300.00		300.00				300.00
		October, 1937, Vouchers							
1969	Herb Dana	P. L. and C. L. Insurance	388.21		388.21				388.21
1980	Cement Gun Construction Co.	Removal of Concrete & Gunit Work	487.07		487.07	487.07			
2009	Herb Dana	Fire and Explosion Insurance	10.74		10.74				10.74
		December, 1937, Vouchers							
2091	Herb Dana	Fire and Explosion Binder	448.18		448.18				448.18
2117	Herb Dana	P. L. and C. L. Insurance 9/25/37-12/5/37	479.32		479.32				479.32
		Totals	39,185.68	2,050.12	37,135.56	19,769.48	1,442.78	1,862.45	14,060.85



JOINT HIGHWAY DISTRICT NO. 13
OF THE STATE OF CALIFORNIA

SCHEDULE B-1

Detail of Engineering Services on Maintenance—
From Monthly Pay Rolls

Services at Tunnel:	Month During Which Services Rendered—All During 1936					
	November	October	September	August	July	June
1	8.00	27.38	30.62	32.16	38.74	
2	29.00	34.78	48.66	12.00	50.74	
3	29.00	18.12	48.66	36.16	67.19	
4	29.00		42.16	36.16	26.54	
5	29.00	27.38	46.11	28.16	8.00	
6	29.00	27.38	12.00	28.16	53.74	
7	45.00	34.78	20.62	28.16	53.74	
8	12.00	34.78	50.36	36.16	53.74	
9	45.00	27.38	28.16	19.00	61.44	
10		27.38	42.66	28.16	61.44	
11		12.00	28.16	28.16	52.12	
12		16.26	35.41	61.16	16.00	
13		16.26	12.00	61.16	53.74	
14		37.38	28.16	61.16	61.74	
15		27.38	28.16	45.41	56.49	18.54
16		27.38	36.16	12.00	61.74	26.54
17		27.38	28.16	44.54	53.74	36.16
18		12.00	36.16	36.54	53.74	18.54
19		27.38	32.16	44.54	16.00	28.16
20		34.78	12.00	25.75	36.16	28.16
21		34.78	28.16	33.00	48.66	8.00
22		34.78	28.16	22.75	36.16	57.16
23		34.78	28.16	13.50	36.16	54.16
24		34.78	28.16	29.00	36.16	49.16
25		12.00	28.16	31.00	32.16	54.16
26		27.38	28.16	33.00	16.00	37.62
27		34.78	12.00	33.00	36.16	16.62
28		34.78	28.16	33.00	36.16	12.00
29		34.78	35.86	22.75	36.16	16.62
30		34.78	28.16	12.00	36.16	
31		41.03		37.12	36.16	
Totals	255.00	846.21	919.68	1,004.82	1,322.88	461.60

The above supported by daily time reports covering the monthly pay roll of the engineering staff.

The above total \$4,810.19, summarized as follows:

Month of June, 1936.....	461.60	
Month of July, 1936.....	1,322.88	
Month of August, 1936.....	1,004.82	
Month of September, 1936.....	919.68	
Month of October, 1936.....	846.21	
Month of November, 1936.....	255.00	
Total.....		4,810.19

JOINT HIGHWAY DISTRICT NO. 13
OF THE STATE OF CALIFORNIA

Detail of Charges for Services—Watchmen—From Monthly Pay Roll

Date of Service:	Daily Total	Grand Total
June 19, 1936.....	18.42	
20	41.22	
22	17.50	
24	18.72	
26	12.50	108.36
July 20, 1936.....	8.00	
21	8.00	
22	8.00	
23	8.00	
24	8.00	
25	3.85	
26	8.00	
27	7.70	
28	7.70	
29	7.70	
30	7.70	
31	7.70	90.35

Joint Highway District No. 13

591

August 1, 1936.....	7.70	
3	7.70	
4	7.70	
5	7.70	
6	7.70	
7	7.70	
8	7.70	
9	7.00	
10	8.00	
23	6.00	
30	6.00	
31	7.00	87.90

September 6, 1936.....	6.00	
7	16.62	
12	10.58	33.20

Total—Watchmen—From Monthly Pay Roll..... 319.81

Superintendence—From Monthly Pay Roll:

Month of July.....	600.00
Month of August.....	600.00
Month of September.....	600.00
Month of October.....	300.00

Total—Superintendence—From Monthly Pay Roll..... 2,100.00

SCHEDULE B-2

JOINT HIGHWAY DISTRICT NO. 13
OF THE STATE OF CALIFORNIA

Detail of Charges for Services Rendered—From Weekly Pay Roll

From Weekly Pay Roll:		Totals	Watchmen	Fire Bosss	Tunnel Maintnec.	East Portal Drain	Margarido Drive
Week Ending:							
Checks							
Issued							
6/20/36	# 1937-1964	578.36	177.00	161.56	239.80		
6/27/36	2020-2050	734.84	320.50	242.34	172.00		
7/ 4/36	2059-2170	2,283.81	304.50	201.95	1,777.36		
7/11/36	2202-2304	2,787.00	251.50	242.34	2,293.16		
7/18/36	2313-2408	2,978.15	248.00	242.34	2,487.81		
7/25/36	2418-2457	1,126.92	209.50	242.34	675.08		
8/ 1/36	2510-2531	806.52	206.50	242.34	357.68		
8/ 8/36	2557-2578	814.52	206.50	242.34	365.68		
8/15/36	2580-2600	816.52	246.50	242.34	327.68		
8/22/36	2601-2623	829.12	253.50	242.34	333.28		
8/29/36	2672-2688	676.52	254.50	242.34	179.68		
9/ 5/36	2714-2729	625.34	259.00	242.34	124.00		
9/12/36	2731-2746	631.34	265.00	242.34	124.00		
9/19/36	2764-2779	631.34	265.00	242.34	124.00		

JOINT HIGHWAY DISTRICT NO. 13 (Continued)

From Weekly Pay Roll:		Totals	Watchmen	Fire Bosses	Tunnel Maintnec.	East Portal Drain	Margarido Drive
9/26/36	2785-2799	570.84	273.00	242.34		55.50	
10/ 3/36	2844-2862	692.84	273.00	242.34	122.00	55.50	
10/10/36	2873-2892	726.44	273.00	242.34	140.00	71.10	
10/17/36	2893-2913	720.84	266.00	242.34	112.00	100.50	
10/24/36	2920-2936	615.84	273.00	242.34		100.50	
10/31/36	2970-2986	575.45	273.00	201.95		100.50	
11/ 7/36	3021-3036	569.50	224.00	245.00			100.50
11/ 9/36	3037-3052	152.80	56.00	70.00			26.80
Totals—From Weekly Pay Roll		20,944.85	5,378.50	5,000.24	9,955.21	483.60	127.30

Summarizing the charges for all services rendered to the 9th day of November, 1936 and summarized above and on the sheet opposite hereto, the following is offered:

Services of Superintendence.....	\$ 2,100.00
Services of Watchmen.....	5,698.31
Services of Fire Bosses.....	5,000.24
Services at East Portal Drain.....	483.60
Services at Margarido Drive.....	127.30
Services—Other Labor at Tunnel.....	9,955.21
Total.....	23,364.66

JOINT HIGHWAY DISTRICT NO. 13
OF THE STATE OF CALIFORNIA

SCHEDULE B-3

Detail of Engineering Services—Measuring Work—
From Monthly Pay Rolls

Services Rendered at Tunnel:	Months During Which Work Performed		
	Aug., 1936	July, 1936	June, 1936
1	57.15	71.17	
2		84.42	
3	53.42	69.72	
4	43.92		
5	46.92		
6	46.92	71.92	
7	40.92	71.92	
8	27.67	71.92	
9		64.22	
10	37.42	64.22	
11	54.70	55.67	
12	7.70		
13	28.42	71.92	
14	21.70	69.42	
15	22.40	63.92	99.67
16		69.42	74.07
17		74.17	88.78
18		58.42	95.80
19			84.28
20		83.42	108.95
21		56.92	
22		69.42	80.00
23		94.00	44.44
24		94.00	65.78
25		72.00	54.67
26			79.14
27		94.30	73.05
28		94.30	
29		94.30	88.92
30		94.30	147.92
31		85.65	
Totals—Measuring Work	489.26	1,965.06	1,185.47

The foregoing represent an aggregate of \$3,639.79 expended in measuring work between the 15th day of June, 1936, and the 15th day of August, 1936.

In addition, during this same period of time, the aggregate sum of \$51.65 is shown as having been expended for services in completing specifications.

The services so indicated may be identified as to the days on which performed, as follows:

July 21, 1936.....	15.00
July 22, 1936.....	14.00
July 31, 1936.....	8.65
August 12, 1936.....	14.00

Total—Completing Specifications 51.65

[Endorsed]: U. S. Dist. Ct. N. D. Cal. No. 20101-R. Deft's Ex. X-113. Filed June 1, 1938. Walter B. Maling, Clerk. By J. A. Schaertzer, Deputy Clerk.

DEFENDANT'S EXHIBIT X-114

JOINT HIGHWAY DISTRICT NO. 13
OF THE STATE OF CALIFORNIA.

Cost of Operations of
Joint Highway District No. 13 of the State of California
May 25, 1936, to November 30, 1937.

Engineering Pay Roll—Monthly Roll.....	\$100,340.21
Office and Legal Pay Roll—Monthly Roll.....	21,000.50
Maintenance and Watchmen—Weekly Pay Roll.....	3,745.49
Materials, Supplies and Expenses.....	26,372.75

Total Costs of Operations.....\$151,458.95

(555 Days Included in Above Period)

(Average Cost Per Day During Above Period \$272.899)



JOINT HIGHWAY DISTRICT NO. 13
OF THE STATE OF CALIFORNIA

Detail of Charges for Services—From Monthly Pay Roll—May 25, 1936 to November 30, 1937

PERIOD COVERED: Engineering Services:		CHECKS ISSUED	Total Monthly Pay Roll	Accounted for Herein	Protection and Maintenance				
					Watchmen, Etc.	Engineering Services	Measuring Work	Completing Specifications	Other Exclusions
Year 1936									
May 25 to 31st	1861 - 1889	1,426.75	1,426.75						
Month of June,	1935 & 1936 &								
June,	1965 - 1994	6,608.82	4,135.57	108.36	461.60	1,185.47			717.82
July,	2465 - 2489	6,586.25	2,570.31	690.35	1,322.88	1,965.06	37.65		
August,	2640 - 2663	6,259.25	4,063.27	687.90	1,004.82	489.26	14.00		
September,	2800 - 2819	5,916.75	4,363.87	633.20	919.68				
October,	2943 - 2962	5,951.00	4,804.79	300.00	846.21				
November,	3078 - 3099	5,272.00	5,017.00		255.00				
December,	3142 and								
December,	3156 - 3179	5,475.75	5,475.75						
Year 1937									
Month of January,	3231 - 3254	5,946.25	5,946.25						
February,	3306 - 3329	6,029.75	6,029.75						
March,	3396 - 3420	6,289.00	6,289.00						
April,	3478 - 3504	6,677.20	6,677.20						
May,	3561 - 3589	7,117.15	7,117.15						
June,	3667 - 3692	6,629.50	6,629.50						
July,	3755 - 3780	6,681.25	6,681.25						
August,	3875 - 3897	6,088.00	6,088.00						
September,	3972 - 3991	5,488.00	5,488.00						
October,	4063 - 4085	5,820.30	5,820.30						
November,	3078 - 3099	5,716.50	5,716.50						
Totals		111,979.47	100,340.21	2,419.81	4,810.19	3,639.79	51.65		717.82
Office and Legal Services:									
Year 1936									
May 25 to 31st	1890 - 1894	230.00	230.00						
Month of June,	1995 - 2003	1,178.00	1,178.00						
July,	2490 - 2497	2,573.75	1,150.00						1,423.75
August,	2664 - 2671	2,412.50	1,282.50						1,130.00
September,	2820 - 2827	2,308.75	1,183.75						1,125.00
October,	2963 - 2969	2,277.50	1,142.50						1,135.00
November,	3100 - 3106	2,255.00	1,135.00						1,120.00
December,	3180 - 3186	2,275.00	1,145.00						1,130.00
Year 1937									
Month of January,	3255 - 3261	2,262.50	1,137.50						1,125.00
February,	3230 - 3236	2,247.50	1,132.50						1,115.00
March,	3421 - 3427	2,290.00	1,155.00						1,135.00
April,	3505 - 3511	2,275.00	1,145.00						1,130.00
May,	3590 - 3596	2,272.50	1,142.50						1,130.00
June,	3693 - 3699	2,267.50	1,137.50						1,130.00
July,	3781 - 3787	2,272.50	1,142.50						1,130.00
August,	3898 - 3904	2,275.00	1,145.00						1,130.00
September,	3792 - 3798	2,261.25	1,141.25						1,120.00
October,	4086 - 4092	2,272.50	1,142.50						1,130.00
November,	3100 - 3106	2,257.50	1,132.50						1,125.00
Totals		40,464.25	21,000.50						19,463.75

JOINT HIGHWAY DISTRICT #13
OF THE STATE OF CALIFORNIA

Detail of Charges for Services—From Weekly Payroll—
May 25, 1936 to Nov. 30, 1937

Week Ending	DESCRIPTION Checks Issued	Total Weekly Payrolls	Accounted For Herein	Protection & Maintenance	Other Ex- cluded Items
5/30/36	2041 - 2062	\$ 318.00			\$ 318.00
6/ 6/36	2069 - 2077	308.06			308.06
6/13/36	2079 - 2086	301.08			301.08
6/20/36	2087 - 2095	108.38			108.38
6/20/36	1937 - 1964	578.36		578.36	
6/27/36	2020 - 2050	734.84		734.84	
7/ 4/36	2068 - 2170	2,283.81		2,283.81	
7/11/36	2202 - 2304	2,787.00		2,787.00	
7/18/36	2313 - 2408	2,978.15		2,978.15	
7/25/36	2434 - 2457	1,126.92		1,126.92	
8/ 1/36	2510 - 2531	806.52		806.52	
8/ 8/36	2557 - 2578	814.52		814.52	
8/15/36	2580 - 2600	816.52		816.52	
8/22/36	2601 - 2623	829.12		829.12	
8/29/36	2672 - 2688	676.52		676.52	
9/ 5/36	2714 - 2729	625.34		625.34	
9/12/36	2731 - 2746	631.34		631.34	
9/19/36	2764 - 2779	631.34		631.34	
9/26/36	2785 - 2799	570.84		570.84	
10/ 3/36	2844 - 2862	692.84		692.84	
10/10/36	2873 - 2892	726.44		726.44	
10/17/36	2893 - 2913	720.84		720.84	
10/24/36	2920 - 2936	615.84		615.84	
10/31/36	2970 - 2986	575.45		575.45	
11/ 7/36	3021 - 3036	569.50		569.50	
11/14/36	3037 - 3052	374.60	221.80	152.80	
11/21/36	3059 - 3063	224.00	224.00		
3/27/37	2109 - 2114	92.00			92.00
6/ 5/37	2125 - 2126	60.00			60.00
6/ 5/37	3641 - 3645	72.00	72.00		
6/12/37	3648 - 3647	80.25	80.25		
6/19/37	3654 - 3655	48.00	48.00		
6/26/37	3663 - 3666	70.80	70.80		

DESCRIPTION		Total Weekly Payrolls	Accounted For Herein	Protection & Maintenance	Other Ex- cluded Items
Week Ending	Checks Issued				
7/ 3/37	3732 - 3733	48.00	48.00		
7/10/37	3739 - 3741	71.00	71.00		
7/17/37	3745 - 3746	48.00	48.00		
7/24/37	3751 - 3752	48.00	48.00		
7/31/37	3796 - 3797	82.40	82.40		
8/ 7/37	3828 - 3832	119.60	119.60		
8/14/37	3839 - 3855	216.19	216.19		
8/21/37	3860 - 3865	164.75	164.75		
8/28/37	3867 - 3869	90.00	90.00		
9/ 4/37	3946 - 3949	97.50	97.50		
9/11/37	3950 - 3954	108.00	108.00		
9/18/37	3957 - 3962	108.50	108.50		
9/25/37	3969 - 3971	96.00	96.00		
10/ 2/37	4020 - 4023	93.00	93.00		
10/ 9/37	4037 - 4039	72.00	72.00		
10/16/37	4043 - 4049	156.00	156.00		
10/23/37	4050 - 4055	252.00	252.00		
10/30/37	4098 - 4103	252.00	252.00		
11/ 6/37	4138 - 4145	281.26	252.00		29.26
11/13/37	4145 - 4159	252.00	252.00		
11/30/37	4165 - 4183	401.70	401.70		
Totals.....		25,907.12	3,745.49	20,944.85	1,216.78

JOINT HIGHWAY DISTRICT NO. 13 OF THE STATE OF CALIFORNIA

Cost of Operations—Materials, Supplies and Expenses

May 25, 1936 to November 30, 1937

Voucher Numbers	Firm to Which Paid	Description of Charges	Total Amount of Vouchers	Charged Elsewhere	Accounted For Herein
	May, 1936, Vouchers				
1085	Herb Dana & Company	Insurance on Instruments	31.97		31.97
1106	Electric Blue Print & Photo Co.	Plumb Bobs	2.06		2.06
1107	F. Bruce Maiden & Co.	Office Rent	100.00		100.00
1111	Wallace B. Boggs	May Expenses	68.20	61.40	6.80
1112	J. W. Barkley	" "	78.73	61.23	17.50
1113	M. C. Collins	" "	23.35	18.70	4.65
1114	John R. Hunter	" "	19.18	16.18	3.00
1115	A. R. Ahlgren	Comptroller's Bond	50.00		50.00
1117	Romaine W. Myers	Services	262.50		262.50
1121	E. H. Frisell	May Expenses	59.80	48.40	11.40
1125	Alhambra Water Company	Water Service	8.75		8.75
1126	Brotherton, Thomas & Co.	Accounting Services	75.00		75.00
1127	H. B. Campbell	May Expenses	16.70	12.00	4.70
1129	R. J. Driggs	" "	10.60	8.40	2.20
1130	George Hammer	" "	28.00	22.00	6.00
1131	L. W. Hunt	" "	24.50	18.80	5.70
1132	E. W. Ray	" "	17.40	14.80	2.60
1133	C. E. Riggs	" "	22.00	17.20	4.80
1135	J. M. Loomer	" "	17.10	12.90	4.20
1136	J. A. Morin	" "	18.00	14.40	3.60

Joint Highway District No. 13

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JOINT HIGHWAY DISTRICT NO. 13 OF THE STATE OF CALIFORNIA

Cost of Operations—Materials, Supplies and Expenses

May 25, 1936 to November 30, 1937

Voucher Numbers	Firm to Which Paid	Description of Charges	Total Amount of Vouchers	Charged Elsewhere	Accounted For Herein
	June, 1936, Vouchers				
1148	Associated Oil Company	Oil, Gasoline & Kerosene	15.06		15.06
1149	Braun-Knecht-Heiman Co.	Chapman Flask	5.41		5.41
1152	East Bay Mun. Utility Dist.	Water Service	4.09		4.09
1154	E. B. Field Co.	Automobile Insurance	95.49		95.49
1155	Goodyear Glove Rubber Footwear	Rubber Boots	19.27		19.27
1157	F. Bruce Maiden & Co.	Office Rent	115.00		115.00
1158	Charles R. Mulgrew	Envelopes	10.30		10.30
1160	Pac. Tel. & Tel. Co.	Telephone Service	78.03		78.03
1161	C. E. Riggs	June Expenses	16.10		16.10
1162	Smith Bros.	Stationery	39.69		39.69
1164	Brotherton, Thomas & Co.	Accounting Services	35.00		35.00
1165	Commercial & Photo View Co.	Prints	97.96		97.96
1166	Dieterich-Post Co.	Blue Prints and Ink	5.26		5.26
1167	East Bay Blue Print & Supply Co.	Blue Print Paper	2.87		2.87
1168	Gilson Electric Supply Co.	Flash Lights, Cells, Flash Lamps	66.78		66.78
1180	State Compensation Insurance Fund	Workmen's Compensation Insurance	476.04	353.61	122.43

JOINT HIGHWAY DISTRICT NO. 13 OF THE STATE OF CALIFORNIA

Cost of Operations—Materials, Supplies and Expenses May 25, 1936 to November 30, 1937

Voucher Numbers	Firm to Which Paid	Description of Charges	Total Amount of Vouchers	Charged Elsewhere	Accounted For Herein
	July, 1936, Vouchers				
1182	Associated Stationers	Install Lock on File Drawer	3.86		3.86
1183	Camera Corner	Films, Finishing, and Kodak Work	13.59		13.59
1188	Romaine W. Myers	Services	385.00		385.00
1189	Pac. Gas & Electric Co.	Light Service	.44		.44
1190	Pac. Tel. & Tel. Co.	Telephoning Service	6.78		6.78
1191	Pacific Rotaprinting Co.	Printing 1000 Forms	8.76		8.76
1193	Zellerbach Paper Co.	Towels	3.86		3.86
1194	Wallace B. Boggs	June Expenses	66.33		66.33
1195	J. W. Barkley	" "	75.24		75.24
1196	M. C. Collins	" "	38.15		38.15
Totals Forwarded			2,618.20	680.02	1,938.18
Totals Brought Forward			2,618.20	680.02	1,938.18
1197	E. H. Frisell	June Expenses	53.10		53.10
1198	John R. Hunter	" "	62.07		62.07
1200	H. B. Campbell	" "	12.00		12.00

JOINT HIGHWAY DISTRICT NO. 13 OF THE STATE OF CALIFORNIA

Cost of Operations—Materials, Supplies and Expenses

May 25, 1936 to November 30, 1937

Voucher Numbers	Firm to Which Paid	Description of Charges	Total Amount of Vouchers	Charged Elsewhere	Accounted For Herein
1201	D. W. Chase	"	2.00		2.00
1202	A. S. Gelston	"	23.34		23.34
1203	George Hammer	"	29.30		29.30
1204	L. W. Hunt	"	12.80		12.80
1205	John M. Loomer	"	17.00		17.00
1206	J. A. Morin	"	18.50		18.50
1207	E. W. Ray	"	10.40		10.40
1214	R. J. Driggs	"	5.00		5.00
1220	Campus Text Book Exchange	Quadrille Ruled Paper	20.60		20.60
1222	H. M. Lawrence	Ford Repairs	2.27		2.27
1229	F. Bruce Maiden & Co.	Office Room	115.00		115.00
1231	Pac. Tel. & Tel. Co.	Telephone Service	102.77		102.77
1234	Associated Stationers	Erasers	1.13		1.13
1235	Camera Corner	Finishing, Films	9.83		9.83
1237	East Bay Blue Print & Supply Co.	Plumb Bobs, Level Rod Strip, Paper	9.27		9.27
1238	Les C. Firestone Automobile Repairs	Automobile Repairs	.85		.85
1244	Pac. Tel. & Tel. Co.	Tel. Service	1.97		1.97
1245	Smith Bros.	Stationery and Office Supplies	24.37		24.37

JOINT HIGHWAY DISTRICT NO. 13 OF THE STATE OF CALIFORNIA

Cost of Operations—Materials, Supplies and Expenses May 25, 1936 to November 30, 1937

Voucher Numbers	Firm to Which Paid	Description of Charges	Total Amount of Vouchers	Charged Elsewhere	Accounted For Herein
	August, 1936, Vouchers				
1248	Wallace B. Boggs	July Expenses	23.60		23.60
1249	J. W. Barkley	"	68.15		68.15
1250	H. B. Campbell	"	11.40		11.40
1251	D. W. Chase	"	1.00		1.00
1252	M. C. Collins	"	23.95		23.95
1253	A. S. Gelston	"	20.00		20.00
1254	George Hammer	"	22.50		22.50
1255	L. W. Hunt	"	15.00		15.00
1256	John R. Hunter	"	30.89		30.89
1257	John A. Morin	"	5.60		5.60
1258	J. M. Loomer	"	12.20		12.20
1260	Wallace B. Boggs	Postage	25.00		25.00
1262	Dietrich-Post Co.	Blue Prints and Paper	5.90		5.90
1268	Romaine W. Myers	Services	350.00		350.00
1278	H. S. Crocker & Co., Inc.	Payroll Sheets	2.58		2.58
1279	C. C. Cook	Repair to Heater	3.00		3.00
1280	R. J. Driggs	July Expenses	1.00		1.00
1281	East Bay Mun. Utility Dist.	Water Service	5.56		5.56

JOINT HIGHWAY DISTRICT NO. 13 OF THE STATE OF CALIFORNIA

Cost of Operations—Materials, Supplies and Expenses

May 25, 1936 to November 30, 1937

Voucher Numbers	Firm to Which Paid	Description of Charges	Total Amount of Vouchers	Charged Elsewhere	Accounted For Herein
1282	Gilson Electric Supply Co.	Mazda Bulbs	2.78		2.78
1283	E. Bruce Maiden Co.	Office Room	115.00		115.00
1285	Pac. Tel. & Tel. Co.	Telephone Service	79.93		79.93
1286	Pac. Tel. & Tel. Co.	"	4.85		4.85
1288	East Bay Utility Dist.	Water Service	2.71		2.71
1289	Brotherton, Thomas Co.	Accounting Services	125.00		125.00
1290	Pac. Tel. & Tel. Co.	Telephone Service	6.25		6.25
1291	Associated Oil Co.	Oil and Gasoline	26.84		26.84
1293	Camera Corner	Finishing Films	3.96		3.96
1295	Dietrich-Post Co.	Paper and Sketch Board	7.44		7.44
Totals Forwarded			4,153.86	680.02	3,473.84
Totals Brought Forward			4,153.86	680.02	3,473.84
1299	Romaine W. Myers	Services	105.00		105.00
1302	Smith Brothers	Stationery and Office Supplies	74.97		74.97
1303	J. W. Barkley	August Expense	65.70		65.70
1304	M. C. Collins	"	24.60		24.60
1305	A. S. Gelston	"	7.25		7.25

JOINT HIGHWAY DISTRICT NO. 13 OF THE STATE OF CALIFORNIA

Cost of Operations—Materials, Supplies and Expenses

May 25, 1936 to November 30, 1937

Voucher Numbers	Firm to Which Paid	Description of Charges	Total Amount of Vouchers	Charged Elsewhere	Accounted For Herein
1306	George Hammer	" "	12.70		12.70
1307	John R. Hunter	" "	31.59		31.59
1308	K. C. Pansford	" "	5.20		5.20
1309	Ruth W. Veal	Telephone Service	7.15		7.15
September, 1936, Vouchers					
1317	East Bay Blue Print & Supply Co.	Paper	2.78		2.78
1321	Pacific Tel. & Tel. Co.	Telephone Service	6.35		6.35
1322	Wallace B. Boggs	August Expense	105.62	63.82	41.80
1327	Inter-City Printing Co.	Printing Contracts	125.97		125.97
1335	Pacific Tel. & Tel. Co.	Telephone Service	141.42		141.42
1337	Associated Oil Company	Oils and Gasoline	33.02		33.02
1339	F. Bruce Maiden & Co.	Office Rent	115.00		115.00
1340	John M. Olney	Repairs to Ford	16.82		16.82
1342	Dietereich-Post Co.	Paper and Blue Prints	7.61		7.61
1343	Inter-City Printing Co.	Printing Bidders' Statements	11.64		11.64
1345	Romaine W. Myers	Services	210.00		210.00
1347	Pacific Tel. & Tel. Co.	Telephone Services	5.50		5.50
1348	Zellerbach Paper Co.	Towels	3.86		3.86

JOINT HIGHWAY DISTRICT NO. 13 OF THE STATE OF CALIFORNIA

Cost of Operations—Materials, Supplies and Expenses May 25, 1936 to November 30, 1937

Voucher Numbers	Firm to Which Paid	Description of Charges	Total Amount of Vouchers	Charged Elsewhere	Accounted For Herein
1349	J. W. Barkley	September Expense	64.73		64.73
1350	M. C. Collins	" "	27.80		27.80
1351	John R. Hunter	" "	31.25		31.25
1352	John A. Morin	" "	6.00		6.00
October, 1936, Vouchers					
1353	Wallace B. Boggs	September Expense	70.81		70.81
1354	A. S. Gelston	" "	6.60		6.60
1355	George Hammer	" "	19.40		19.40
1360	H. M. Lawrence	Ford Repairs	31.26		31.26
1361	Pacific Tel. & Tel. Co.	Telephone Services	5.65		5.65
1364	Gelston Electric Supply Co.	Unit Cells	24.47		24.47
1366	Smith Brothers	Stationery and Office Supplies	24.98		24.98
1369	Inter-City Printing Co.	Printing Contract Blanks	118.45		118.45
1371	Pacific Tel. & Tel. Co.	Telephone Service	79.90		79.90
1375	Alhambra Water Co.	Water and Cups	11.33		11.33
1379	Bruce Maiden & Co.	Office Rent	115.00		115.00
1380	Monroe Calculating Mach. Co.	Repairs to Calculator	12.00		12.00
1384	Associated Oil Company	Gasoline and Oils	38.33		38.33

JOINT HIGHWAY DISTRICT NO. 13 OF THE STATE OF CALIFORNIA

Cost of Operations—Materials, Supplies and Expenses

May 25, 1936 to November 30, 1937

Voucher Numbers	Firm to Which Paid	Description of Charges	Total Amount of Vouchers	Charged Elsewhere	Accounted For Herein
1386	Camera Corner	Films and Developing	9.99		9.99
1388	East Bay Blue Print & Supply Co.	Spads	25.96		25.96
1389	Gilson Electrical Supply Co.	Lamp Bulbs	3.71		3.71
Totals Forwarded					
			6,001.23	743.84	5,257.39
Totals Brought Forward					
			6,001.23	743.84	5,257.39
1390	Harms & Morse	Paper	3.30		3.30
1392	Pacific Tel. & Tel. Co.	Telephone Service	6.10		6.10
1393	Smith Bros.	Stationery, and Office Supplies	25.69		25.69
1395	J. W. Barkley	October Expenses	62.29		62.29
1396	M. C. Collins	" "	22.50		22.50
1397	John R. Hunter	" "	24.17		24.17
1398	A. S. Gelston	" "	4.80		4.80
1400	Romaine W. Myers	Services	210.00		210.00
November, 1936, Vouchers					
1402	Wallace B. Boggs	October Expenses	26.28		26.28
1403	George Hammer	" "	26.60		26.60

JOINT HIGHWAY DISTRICT NO. 13 OF THE STATE OF CALIFORNIA

Cost of Operations—Materials, Supplies and Expenses

May 25, 1936 to November 30, 1937

Voucher Numbers	Firm to Which Paid	Description of Charges	Total Amount of Vouchers	Charged Elsewhere	Accounted For Herein
1405	Pacific Tel. & Tel. Co.	Telephone Service	4.95		4.95
1406	Pacific Rotaprinting Co.	Printing Forms	18.29		18.29
1416	Wallace B. Boggs	Postage	25.00		25.00
1418	Harris & Evey, Inc.	Non-Ownership Auto Ins.	220.72		220.72
1422	Les C. Firestine	Ford Repairs	9.28		9.28
1423	Gilson Electrical Supply Co.	Unit Cells	24.47		24.47
1424	Hercules Equipment & Rubber Co.	Rubber Coats	37.08		37.08
1426	F. Bruce Maiden & Co.	Office Rent	115.00		115.00
1427	Pacific Tel. & Tel. Co.	Telephone Service	64.40	29.75	34.65
1429	Associated Oil Co.	Gasoline & Oil	28.67		28.67
1430	State Compensation Ins. Fund	Compensation Insurance	430.00		430.00
1431	Camera Corner	Developing Films	366.00		366.00
1432	Inter-City Co.	Printing Contracts	592.00		592.00
1434	Smith Bros.	Stationery and Office Supplies	35.84		35.84
1437	Wallace B. Boggs	November Expenses	30.50		30.50
1438	J. W. Barkley	" "	56.56		56.56
1439	M. C. Collins	" "	19.50		19.50
1440	John R. Hunter	" "	16.46		16.46
1441	H. B. Campbell	" "	8.40		8.40
1442	A. S. Gelston	" "	5.85		5.85
1445	Romaine W. Myers	Services	280.00		280.00

JOINT HIGHWAY DISTRICT NO. 13 OF THE STATE OF CALIFORNIA

Cost of Operations—Materials, Supplies and Expenses

May 25, 1936 to November 30, 1937

Voucher Numbers	Firm to Which Paid	Description of Charges	Total Amount of Vouchers	Charged Elsewhere	Accounted For Herein
December, 1936, Vouchers					
1448	East Bay Blue Print & Supply Co.	Rules and Tracing Paper	9.09		9.09
1452	George Hammer	November Expenses	29.50		29.50
1455	Pacific Tel. & Tel. Co.	Telephone Services	17.24		17.24
1458	Inter-City Co.	Printing Parts of Contracts	33.42		33.42
1460	Zellerbach Paper Co.	Paper Towels	3.86		3.86
1468	Les C. Firestone	Ford Repairs	8.27		8.27
1469	Pacific Tel. & Tel. Co.	Telephone Service	78.01		78.01
1472	F. Bruce Maiden & Co.	Office Rent	115.00		115.00
1475	Railway Express Agency	Express Charges	1.87		1.87
1476	Compton's Electric	Repairs to Heater	3.00		3.00
1477	Pacific Tel. & Tel. Co.	Telephone Services	6.70		6.70
1483	Associated Oil Co.	Gasoline & Oil	39.83		39.83
1484	Wallace B. Boggs	Postage	25.00		25.00
1485	Camera Corner	Finishing Films	5.41		5.41
1487	C. C. Cook	Repairs to Heater	3.00		3.00
Totals Forwarded			8,232.71	773.59	7,459.12

JOINT HIGHWAY DISTRICT NO. 13 OF THE STATE OF CALIFORNIA

May 25, 1936 to November 30, 1937

Cost of Operations—Materials, Supplies and Expenses

Voucher Numbers	Firm to Which Paid	Description of Charges	Total Amount of Vouchers	Charged Elsewhere	Accounted For Herein
Totals Brought Forward					
1488	Inter-City Printing Co.	Page 1 of Contract	7.42		7.42
1489	Pacific Tel. & Tel. Co.	Telephone Service	8.24		8.24
1493	Romaine W. Myers	Services	175.00		175.00
1495	J. W. Barkley	December Expense	53.74		53.74
1496	M. C. Collins	"	16.20		16.20
1497	A. S. Gelston	"	5.30		5.30
1498	George Hammar	"	28.40		28.40
1499	John R. Hunter	"	15.41		15.41
1505	East Bay Blue Print & Supply Co.	Paper, Rings and Binders	11.45		11.45
1507	Smith Brothers	Stationery and Office Supplies	19.22		19.22
1508	Wallace B. Boggs	December Expense	59.21		59.21
January, 1937, Vouchers					
1513	State Compensation Ins. Fund.	Compensation Insurance	1,833.94		1,833.94
1516	Gilson Electrical Supply Co.	Flash Lights and Bulbs	39.96		39.96
1517	Harms and Morse	Paper and Cord	2.32		2.32
1520	Pacific Tel. & Tel. Co.	Telephone Service	68.02		68.02
1521	Ruth W. Veal	Telephone	5.00		5.00

JOINT HIGHWAY DISTRICT NO. 13 OF THE STATE OF CALIFORNIA

Cost of Operations—Materials, Supplies and Expenses

May 25, 1936 to November 30, 1937

Voucher Numbers	Firm to Which Paid	Description of Charges	Total Amount of Vouchers	Charged Elsewhere	Accounted For Herein
1523	Associated Stationers	Stationery	49.96		49.96
1525	Camera Corner	Developing	4.69		4.69
1528	Keelox Manufacturing Co.	Carbon Paper	2.06		2.06
1529	F. Bruce Maiden & Co.	Office Rent	115.00		115.00
1531	Pacific Tel. & Tel. Co.	Telephone Service	6.42		6.42
1532	Pacific Tel. & Tel. Co.	Telephone Service	7.00		7.00
1533	Smith Brothers	Stationery	82.50		82.50
1534	Wallace B. Boggs	January Expense	26.25		26.25
1535	J. W. Barkley	" "	57.40		57.40
1536	M. C. Collins	" "	54.45		54.45
1537	E. H. Frisell	" "	27.20		27.20
1538	John R. Hunter	" "	69.89		69.89
1540	Romaine W. Myers	Services	350.00		350.00
1547	A. S. Gelston	January Expense	5.46		5.46
1548	H. B. Campbell	January Expense	17.70		17.70
1549	George Hammer	January Expense	21.50		21.50

JOINT HIGHWAY DISTRICT NO. 13 OF THE STATE OF CALIFORNIA

Cost of Operations—Materials, Supplies and Expenses

May 25, 1936 to November 30, 1937

Voucher Numbers	Firm to Which Paid	Description of Charges	Total Amount of Vouchers	Charged Elsewhere	Accounted For Herein
	February, 1937, Vouchers				
1556	Braun-Knecht-Heimann Co.	Chapman Flask	5.36		5.36
1557	Compton Electric	Repairs to Heater	3.75		3.75
1559	L. W. Hunt	January Expense	43.15		43.15
1563	John M. Olney	Ford Repairs	69.86		69.86
1566	F. Bruce Maiden & Co.	Office Rent	115.00		115.00
1567	Gilsons Electrical Supply Co.	Unit Calls	24.47		24.47
1569	Pacific Tel. & Tel. Co.	Telephone Service	77.65		77.65
1570	Zellerbach Paper Co.	Towels and Paper	7.55		7.55
1575	Associated Oil Company	Gasoline and Oil	35.92		35.92
1576	Camera Corner	Developing	18.07		18.07
1578	Dietereich-Post Co.	Repairing Transit	25.00		25.00
1580	Maxwell Hdwe. Co.	Pails, Brushes, Padlocks	4.01		4.01
1581	Pacific Tel. & Tel. Co.	Telephone Service	13.06		13.06
1582	Smith Brothers	Stationery and Office Supplies	76.53		76.53
Totals Forwarded			11,998.40	773.59	11,224.81

JOINT HIGHWAY DISTRICT NO. 13 OF THE STATE OF CALIFORNIA

Cost of Operations—Materials, Supplies and Expenses May 25, 1936 to November 30, 1937

Voucher Numbers	Firm to Which Paid	Description of Charges	Total Amount of Vouchers	Charged Elsewhere	Accounted For Herein
Totals Brought Forward					
1583	J. W. Barkley	February Expense	11,998.40	773.59	11,224.81
1584	H. B. Campbell	"	52.20		52.20
1585	M. C. Collins	"	23.10		23.10
1586	E. H. Frizell	"	31.35		31.35
1587	A. L. Gelston	"	46.20		46.20
1588	L. W. Hunt	"	24.30		24.30
1589	John R. Hunter	"	16.90		16.90
1590	J. A. Morin	"	21.41		21.41
1596	George Hammer	"	6.40		6.40
1598	Henry L. Hinman	"	25.50		25.50
1600	Romaine W. Myers	Telephone and Expense	45.00		45.00
1603	East Bay Blue Print & Supply Co.	Services	420.00		420.00
1604	Wallace B. Bogs	Paper and Ink	5.72		5.72
		February Expense	59.53		59.53
March, 1937, Vouchers					
1610	Charles R. Hadley Co.	Stationery	8.09		8.09
1612	Inter-City Printing Co.	Printing	13.39		13.39

JOINT HIGHWAY DISTRICT NO. 13 OF THE STATE OF CALIFORNIA

Cost of Operations—Materials, Supplies and Expenses

May 25, 1936 to November 30, 1937

Voucher Numbers	Firm to Which Paid	Description of Charges	Total Amount of Vouchers	Charged Elsewhere	Accounted For Herein
1615	Pacific Tel. & Tel. Co.	Telephone Service	21.53		21.53
1616	Pacific Tel. & Tel. Co.	Telephone Service	87.12		87.12
1618	Alhambra Water Co.	Water Service	8.76		8.76
1619	Associated Oil Company	Gasoline and Oil	6.35		6.35
1620	Wallace B. Boggs	Postage	25.00		25.00
1622	F. Bruce Maiden & Co.	Office Rent	115.00		115.00
1623	Gilson Electrical Supply Co.	Lamps	4.33		4.33
1627	Camera Corner	Developing	21.41		21.41
1629	Dietereich-Post Co.	Blue Prints, Level, Paper, Etc.	16.79	3.70	13.09
1631	Romaine W. Myers	Services	595.00		595.00
1632	Pacific Tel. & Tel. Co.	Telephone Service	14.79		14.79
1633	Smith Brothers	Stationery and Office Supplies	14.91		14.91
1634	Wallace B. Boggs	March Expense	26.30		26.30
1635	J. W. Barkley	" "	66.50		66.50
1636	H. B. Campbell	" "	25.10		25.10
1637	M. C. Collins	" "	44.10		44.10
1638	A. S. Gelston	" "	12.30		12.30

JOINT HIGHWAY DISTRICT NO. 13 OF THE STATE OF CALIFORNIA

Cost of Operations—Materials, Supplies and Expenses

May 25, 1936 to November 30, 1937

Voucher Numbers	Firm to Which Paid	Description of Charges	Total Amount of Vouchers	Charged Elsewhere	Accrued For Herein
1639	George Hammer	March Expense	31.10		31.10
1640	John R. Hunter	"	30.08		30.08
1641	J. A. Morin	"	15.20		15.20
1642	K. E. Ponsford	"	6.00		6.00
1643	D. W. Chase	"	14.20		14.20
1644	L. W. Hunt	"	20.60		20.60
1645	East Bay Blue Print & Supply Co.	Level Books, Tape Line	21.78		21.78
April, 1937, Vouchers					
1656	E. H. Frizell	March Expense	68.50		68.50
1657	Harris and Evey, Inc.	Automobile Insurance	70.07		70.07
1660	John M. Olney	Repairs to Ford	9.20		9.20
1663	Les. C. Firestone	Repairs to Ford	6.15		6.15
1664	Harms & Morse, Inc.	Cards and Papers	2.32		2.32
1665	F. Bruce Maiden & Co.	Office Rent	115.00		115.00
1667	Pacific Tel. & Tel. Co.	Telephone Service	87.10		87.10
Totals Forwarded			14,400.08	777.29	13,622.79

JOINT HIGHWAY DISTRICT NO. 13 OF THE STATE OF CALIFORNIA

Cost of Operations—Materials, Supplies and Expenses

May 25, 1936 to November 30, 1937

Voucher Numbers	Firm to Which Paid	Description of Charges	Total Amount of Vouchers	Charged Elsewhere	Accounted For Herein
Totals Brought Forward					
1671	Compton's Electric	Repair to Heater	3.75		3.75
1673	Gilson Electric Supply Co.	Unit Cells	24.47		24.47
1674	Zellerbach Paper Co.	Towels	7.11		7.11
1675	Braun-Knecht-Heiman Co.	Flasks, Plates, Etc.	26.83		26.83
1676	Camera Corner	Developing	3.96		3.96
1677	Maxwell Hardware Co.	Buckets	2.78		2.78
1678	John M. Olney	Repairing Ford	4.55		4.55
1679	Pacific Tel. & Tel. Co.	Telephone Service	16.43		16.43
1680	Smith Brothers	Stationery and Office Supplies	33.41		33.41
1681	Associated Oil Company	Gasoline and Oil	35.91		35.91
1684	Brotherton, Thomas & Company	Accounting Services	175.00		175.00
1687	Dietereich-Post Co.	Blue Prints and Chain Line		1.24	16.32
1689	J. W. Barkley	April Expense	17.56		56.30
1690	D. W. Chase	" "	56.30		17.60
1691	M. C. Collins	April Expense	17.60		40.70
1692	E. H. Frizell	" "	40.70		58.90
1693	A. S. Gelston	" "	58.90		17.70

JOINT HIGHWAY DISTRICT NO. 13 OF THE STATE OF CALIFORNIA

Cost of Operations—Materials, Supplies and Expenses

May 25, 1936 to November 30, 1937

Voucher Numbers	Firm to Which Paid	Description of Charges	Total Amount of Vouchers	Charged Elsewhere	Accounted For Herein
1694	L. W. Hunt	April Expense	49.30		49.30
1695	John R. Hunter	" "	7.05		7.05
1696	J. A. Morin	" "	40.30		40.30
1697	H. B. Campbell	" "	17.50		17.50
1698	George Hammer	" "	28.60		28.60
1701	Romaine W. Myers	Services	490.00		490.00
May, 1937, Vouchers					
1713	Wallace B. Boggs	April Expense	69.52	42.50	27.02
1714	Braun-Knecht-Heimann Co.	Chapman Flask	5.36		5.36
1719	Pacific Rotaprinting Co.	Printing Forms	72.10		72.10
1722	F. Bruce Maiden & Co.	Office Rent	115.00		115.00
1723	Arthur R. Ahlgren	Comptroller's Bond	50.00		50.00
1724	Herb Dana	Surveyor's Instruments Ins.	31.97		31.97
1725	Pacific Tel. & Tel. Co.	Telephone Service	73.00		73.00
1729	Associated Oil Company	Gasoline and Oil	12.43		12.43
1730	Protherton, Thomas & Company	Accounting Service	75.00		75.00
1733	Herb Dana	Treasurer's Bond	500.00		500.00
1734	Dieterich-Post Co.	Blue Prints, Books, Tape	11.46	.52	10.94

JOINT HIGHWAY DISTRICT NO. 13 OF THE STATE OF CALIFORNIA

Cost of Operations—Materials, Supplies and Expenses

May 25, 1936 to November 30, 1937

Voucher Numbers	Firm to Which Paid	Description of Charges	Total Amount of Vouchers	Charged Elsewhere	Accounted For Herein
1735	East Bay Blue Print & Supply Co.	Blue Prints, Level Book	1.83	.72	1.11
1736	Maxwell Hdwe. Co.	Locks, Hammers, Level	14.74		14.74
1737	Pacific Tel. & Tel. Co.	Telephone Service	20.88		20.88
1738	Smith Brothers	Stationery and Office Supplies	57.89		57.89
1740	J. W. Barkley	May Expense	65.20		65.20
1741	D. W. Chase	" "	16.05		16.05
1742	M. C. Collins	" "	29.90		29.90
1743	John R. Hunter	" "	31.88		31.88
1744	J. A. Morin	" "	66.00		66.00
1745	K. E. Ponsford	" "	11.00		11.00
1749	Romaine W. Myers	Services	420.00		420.00
1750	Les. C. Firestone	Repair to Ford	8.61		8.61
1751	Oakland Blue Print Co.	Blue Prints	72.07		72.07
1752	A. S. Gelston	May Expense	28.05		28.05
1753	George Hammer	May Expense	29.70		29.70
Totals Forwarded			17,465.43	822.27	16,643.16

JOINT HIGHWAY DISTRICT NO. 13 OF THE STATE OF CALIFORNIA

Cost of Operations—Materials, Supplies and Expenses

May 25, 1936 to November 30, 1937

Voucher Numbers	Firm to Which Paid	Description of Charges	Total Amount of Vouchers	Charged Elsewhere	Accounted For Herein
	Totals Brought Forward		17,465.43	822.27	16,643.16
1754	E. W. Ray	May Expense	10.30		10.30
1757	Pacific Rotaprinting Co.	Printing	8.45		8.45
1758	Wallace B. Boggs	May Expense	38.30		38.30
1759	E. H. Frisell	" "	69.90		69.90
1760	L. W. Hunt	" "	41.10		41.10
	June, 1937, Vouchers				
1777	Pacific Tel. & Tel. Co.	Telephone Service	83.10		83.10
1778	Les C. Firestone	Repair Ford	2.41		2.41
1780	Associated Stationers	Service Sheets	2.22		2.22
1781	Wallace B. Boggs	Postage	25.00		25.00
1783	E. B. Field Company	Ford Sedan Insurance	92.99		92.99
1784	F. Bruce Maiden & Co.	Office Rent	115.00		115.00
1787	Associated Oil Co.	Gasoline and Oil	13.74		13.74
1789	Gilson Electrical Supply Co.	Unit Cells	23.76		23.76
1791	Brotherton, Thomas & Co.	Accounting Services	65.00		65.00
1792	Camera Corner	Developing Films	8.29		8.29

JOINT HIGHWAY DISTRICT NO. 13 OF THE STATE OF CALIFORNIA

Cost of Operations—Materials, Supplies and Expenses

May 25, 1936 to November 30, 1937

Voucher Numbers	Firm to Which Paid	Description of Charges	Total Amount of Vouchers	Charged Elsewhere	Accounted For Herein
1793	Dietrich-Post Co.	Cross Section Paper	2.58		2.58
1794	Maxwell Hardware Co.	Jars	.81		.81
1795	Romaine W. Myers	Services	560.00		560.00
1797	Pacific Tel. & Tel. Co.	Telephone Service	15.34		15.34
1798	Smith Bros.	Stationery and Office Supplies	17.11		17.11
1799	Ruth W. Veal	Telephone Service	5.00		5.00
1800	Wallace B. Boggs	June Expenses	58.18		58.18
1801	J. W. Barkley	" "	64.40		64.40
1802	Walter B. Berger	" "	11.30		11.30
1803	M. C. Collins	" "	43.80		43.80
1804	George Hammer	" "	30.30		30.30
1805	John R. Hunter	" "	16.65		16.65
1806	K. E. Ponsford	May and June Expenses	9.00		9.00
1807	D. W. Chase	June Expenses	13.15		13.15
1808	A. S. Gelston	" "	22.80		22.80
1809	L. W. Hunt	" "	53.60		53.60
1810	E. W. Ray	" "	8.80		8.80
1812	E. H. Frisell	" "	81.20		81.20

JOINT HIGHWAY DISTRICT NO. 13 OF THE STATE OF CALIFORNIA

Cost of Operations—Materials, Supplies and Expenses

May 25, 1936 to November 30, 1937

Voucher Numbers	Firm to Which Paid	Description of Charges	Total Amount of Vouchers	Charged Elsewhere	Accounted For Herein
July, 1937, Vouchers					
1823	J. A. Morin	June Expenses	49.70		49.70
1827	F. Bruce Maiden & Co.	Office Rent	115.00		115.00
1830	Pacific Tel. & Tel. Co.	Telephone Service	69.35		69.35
1833	Associated Oil Co.	Gasoline and Oil	45.54		45.54
1834	Camera Corner	Printing Pictures	3.40		3.40
1836	Dieterich-Post Co.	Field Book	6.18		6.18
1837	East Bay Blue Print and Supply Co.	Draughting Sheets	1.55		1.55
1838	Pacific Tel. & Tel. Co.	Telephone Service	15.80		15.80
1839	Smith Brothers	Stationery and Office Supplies	4.30		4.30
1840	K. E. Ponsford	July Expenses	8.80		8.80
1842	Brotherton, Thomas & Co.	Accounting Services	25.00		25.00
1843	East Bay Blue Print & Supply Co.	Tape Line	13.08		13.08
1845	J. W. Barkley	July Expenses	57.62		57.62
Totals Forwarded			19,494.33	822.27	18,672.06

JOINT HIGHWAY DISTRICT NO. 13 OF THE STATE OF CALIFORNIA

Cost of Operations—Materials, Supplies and Expenses

May 25, 1936 to November 30, 1937

Voucher Numbers	Firm to Which Paid	Description of Charges	Total Amount of Vouchers	Charged Elsewhere	Accounted For Herein
Totals Brought Forward					
1846	D. W. Chase	July Expense	12.50		12.50
1847	M. C. Collins	"	31.00		31.00
1848	A. S. Gelston	"	8.88		8.88
1849	John R. Hunter	"	26.18		26.18
1850	W. B. Berger	"	27.50		27.50
1851	L. W. Hunt	"	39.10		39.10
1852	J. A. Morin	"	45.10		45.10
1853	Wallace B. Boggs	"	72.45	58.75	13.70
1854	E. H. Frizell	"	88.10		88.10
1857	Romaine W. Myers	Services	525.00		525.00
1859	Pacific Rotoprinting Co.	Stationery	17.77		17.77
August, 1937, Vouchers					
1867	George Hammer	July Expense	26.60		26.60
1868	Harns & Morse	Paper	2.06		2.06
1872	Railway Express Agency	Express	2.06		2.06
1877	Pacific Tel. & Tel. Co.	Telephone Service	77.28		77.28

JOINT HIGHWAY DISTRICT NO. 13 OF THE STATE OF CALIFORNIA

Cost of Operations—Materials, Supplies and Expenses

May 25, 1936 to November 30, 1937

Voucher Numbers	Firm to Which Paid	Description of Charges	Total Amount of Vouchers	Charged Elsewhere	Accounted For Herein
1873	Associated Oil Company	Gasoline and Oil	43.12		43.12
1880	J. Bruce Maiden & Co.	Office Rent	115.00		115.00
1881	Pacific Tel. & Tel. Co.	Telephone Service	20.76		20.76
1884	Brotherton, Thomas & Company	Accounting Service	117.50		117.50
1886	Dieterich-Post Co.	Blue Prints and Cloth	14.58	2.22	12.36
1888	Gilson, Electrical Supply Co.	Lamp Bulbs	.68		.68
1889	D. A. Lietz Co.	Shade Glass	.92		.92
1890	Maxwell Hdwe. Co.	Brush Hoods	5.46		5.46
1891	Smith Brothers	Stationery and Office Supplies	7.59		7.59
1892	K. E. Ponsford	August Expense	16.50		16.50
1893	John R. Hunter	"	8.99		8.99
1894	Wallace B. Boggs	"	101.80	44.40	57.40
1895	J. W. Barkley	"	58.40		58.40
1896	A. S. Gelston	"	7.23		7.23
1897	M. C. Collins	"	39.60		39.60
1898	George Hammer	"	26.30		26.30
1899	W. B. Berger	"	12.60		12.60

JOINT HIGHWAY DISTRICT NO. 13 OF THE STATE OF CALIFORNIA

Cost of Operations—Materials, Supplies and Expenses

May 25, 1936 to November 30, 1937

Voucher Numbers	Firm to Which Paid	Description of Charges	Total Amount of Vouchers	Charged Elsewhere	Accounted For Herein
1900	Camera Corner	Developing	8.19		8.19
1903	C. L. Geyman	August Expense	3.80		3.80
1904	E. H. Frizell	"	43.30		43.30
1905	L. W. Hunt	"	18.80		18.80
1906	J. A. Morin	"	45.60		45.60
1909	Romaine W. Myers	Services	560.00		560.00
1911	Pacific Rotoprinting Co.	Printing	7.73		7.73
September, 1937, Vouchers					
1920	D. W. Chase	August Expense	13.40		13.40
1925	Wallace B. Boggs	Postage	25.00		25.00
1928	Pacific Tel. & Tel. Co.	Telephone Service	81.61		81.61
1930	Associated Oil Company	Gasoline and Oil	12.54		12.54
1931	F. Bruce Maiden Co.	Office Rent	115.00		115.00
1932	Smith Brothers	Stationery and Office Supplies	20.63		20.63
1934	Camera Corner	Developing	4.89		4.89
Totals Forwarded			22,053.43	927.64	21,125.79

JOINT HIGHWAY DISTRICT NO. 13 OF THE STATE OF CALIFORNIA

Cost of Operations—Materials, Supplies and Expenses

May 25, 1936 to November 30, 1937

Voucher Numbers	Firm to Which Paid	Description of Charges	Total Amount of Vouchers	Charged Elsewhere	Accounted For Herein
Totals Brought Forward					
1937	Gilson Electric Supply Co.	Dry Cells and Unit Cells	22.43	927.64	21,125.79
1938	Romaine W. Myers	Services	595.00		22.43
1940	Pacific Tel. & Tel. Co.	Telephone Service	17.87		595.00
1941	Wallace B. Boggs	September Expenses	72.45	37.25	17.87
1942	J. W. Barkley	"	62.62		35.20
1943	M. C. Collins	"	34.85		62.62
1944	K. E. Ponsford	"	20.00		34.85
1945	George Hammer	"	56.20		20.00
1946	W. B. Berger	"	5.80		56.20
1947	John R. Hunter	"	5.33		5.80
1948	A. S. Gelston	"	8.25		5.33
1949	J. A. Morin	"	38.30		8.25
1951	D. W. Chase	"	3.25		38.30
1952	C. L. Geyman	"	3.40		3.25
					3.40

JOINT HIGHWAY DISTRICT NO. 13 OF THE STATE OF CALIFORNIA

Cost of Operations—Materials, Supplies and Expenses

May 25, 1936 to November 30, 1937

Voucher Numbers	Firm to Which Paid	Description of Charges	Total Amount of Vouchers	Charged Elsewhere	Accounted For Herein
October, 1937, Vouchers					
1961	L. W. Hunt	September Expenses	27.40		27.40
1970	Les C. Firestine	Ford Repair	.55		.55
1971	E. H. Frisell	September Expenses	21.00		21.00
1972	F. Bruce Maiden & Co.	Office Rent	115.00		115.00
1973	J. M. Olney	Ford Repair	5.64		5.64
1974	Pacific Tel. & Tel. Co.	Telephone Service	97.69		97.69
1975	Associated Oil Co.	Gasoline and Oil	18.29		18.29
1977	Henry L. Hinman	October Expense	76.00		76.00
1982	East Bay Blue Print and Supply Co.	Rules	3.34		3.34
1983	Pac. Tel. & Tel. Co.	Telephone Services	22.73		22.73
1984	Smith Bros.	Envelopes, Paper	25.91		25.91
1985	K. E. Ponsford	October Expenses	21.70		21.70
1986	John R. Hunter	" "	9.52		9.52
1988	J. W. Barkley	" "	68.39		68.39
1989	M. C. Collins	" "	3.85		3.85
1990	C. L. Geyman	" "	4.00		4.00
1991	Wallace B. Boggs	Postage	25.00		25.00

JOINT HIGHWAY DISTRICT NO. 13 OF THE STATE OF CALIFORNIA

Cost of Operations—Materials, Supplies and Expenses

May 25, 1936 to November 30, 1937

Voucher Numbers	Firm to Which Paid	Description of Charges	Total Amount of Vouchers	Charged Elsewhere	Accounted For Herein
1992	Brotherton, Thomas & Co.	Accounting Services	75.00		75.00
1994	Commercial & Photo View Co.	Prints and Slides	77.47		77.47
1998	Romaine W. Myers	Services	595.00		595.00
2001	W. B. Berger	October Expenses	17.50		17.50
2002	H. B. Campbell	"	35.70		35.70
2003	D. W. Chase	"	3.10		3.10
2004	W. K. Guthrie	"	20.90		20.90
2005	George Hammer	"	62.30		62.30
2006	L. W. Hunt	"	39.30		39.30
2007	J. A. Morin	"	10.90		10.90
November, 1937, Vouchers					
2019	A. S. Gelston	October Expenses	21.10		21.10
2020	E. H. Frisell	"	23.30		23.30
2021	Les C. Firestine	Ford Repair	5.52		5.52
2024	Gilson Electric Supply Co.	Unit Cells	13.44		13.44
2030	Les C. Firestine	Ford Repair	5.66		5.66
Totals Forwarded			24,551.38	964.89	23,586.49

JOINT HIGHWAY DISTRICT NO. 13 OF THE STATE OF CALIFORNIA

Cost of Operations—Materials, Supplies and Expenses

May 25, 1936 to November 30, 1937

Voucher Numbers	Firm to Which Paid	Description of Charges	Total Amount of Vouchers	Charged Elsewhere	Accounted For Herein
	Totals Brought Forward				
2031	East Bay Blue Print & Supply Co.	Scale and Paper	24,551.38	964.89	23,586.49
2032	Pac. Tel. & Tel. Co.	Telephone Services	3.34		3.34
2032A	Ruth W. Veal	Telephone Service	91.26		91.26
2033	Harris & Evey, Inc.	Non-Ownership Auto Insurance	5.45		5.45
2035	Railway Express Agency	Express	127.58		127.58
2036	Associated Oil Co.	Gasoline & Oil	.93		.93
2037	Camera Corner	Films	27.64		27.64
2039	Les C. Firestone	Ford Repair	8.91		8.91
2040	W. H. Picard Inc.	Repairing Water Line	16.99		16.99
2041	Smith Bros.	Stationery and Office Supplies	65.00		65.00
			10.35		10.35
	December, 1937, Vouchers				
2046	J. W. Barkley	November Expenses	57.40		57.40
2047	M. C. Collins	" "	7.39		7.39
2048	L. W. Hunt	" "	27.40		27.40
2049	J. A. Morin	" "	7.20		7.20
2050	K. E. Ponsford	" "	3.00		3.00
2051	D. W. Chase	" "	4.10		4.10
2052	George Hammer	" "	54.10		54.10

JOINT HIGHWAY DISTRICT NO. 13 OF THE STATE OF CALIFORNIA

Cost of Operations—Materials, Supplies and Expenses

May 25, 1936 to November 30, 1937

Voucher Numbers	Firm to Which Paid	Description of Charges	Total Amount of Vouchers	Charged Elsewhere	Accounted For Herein
2053	W. B. Berger	November Expenses	8.00		8.00
2054	H. B. Campbell	" "	15.00		15.00
2055	E. H. Frisell	" "	17.60		17.60
2056	John R. Hunter	" "	13.97		13.97
2062	Pacific Rotaprinting Co.	Printing Forms	33.45		33.45
2063	Pac. Tel. & Tel. Co.	Telephone Service	14.78		14.78
2064	Wallace B. Boggs	November Expenses	78.00		78.00
2065	A. S. Gelston	" "	19.30		19.30
2069	Alhambra Water Co.	Water Service	6.18		6.18
2070	Pacific Tel. & Tel. Co.	Telephone Service	11.85		11.85
2102	State Compensation Insurance Fund	Workmen's Compensation Insurance	2,072.08	91.14	1,980.94
2105	Pacific Tel. & Tel. Co.	Telephone Service	17.62		17.62
2115	Associated Oil Co.	Gasoline & Oil	30.74	16.44	14.30
2142	January, 1938, Vouchers John M. Olney	Ford Repair (September bill)	37.23		37.23
Totals			27,445.22	1,072.47	26,372.75

[Endorsed]: U. S. Dist. Ct. N. D. Cal. No. 20101-R. Deft's Ex. N-114. Filed June 1, 1938. Walter B. Mal-
ing, Clerk. By J. A. Schaertzer, Deputy Clerk.

DEFENDANT'S EXHIBIT X-116.

State of California,
County of Contra Costa—ss.

I, S. C. Wells, County Clerk of the County of Contra Costa, and Ex-Officio Clerk of the Board of Supervisors of the County of Contra Costa, State of California, do hereby certify that the annexed is a full, true and correct copy of a certified copy of a resolution of the Board of Directors of Joint Highway District No. 13 of the State of California, which was delivered to and filed with the Board of Supervisors of the County of Contra Costa, State of California, on the 2nd day of December, 1937, and that the same is now on file with such Board of Supervisors, and a part of the records of said Board.

Dated, this 2nd day of December, 1937.

[Seal of Board of
Supervisors]

S. C. WELLS,
County Clerk and Ex-Officio
Clerk of the Board of Su-
pervisors of the County of
Contra Costa, State of Cali-
fornia.

I, Harry N. Stow, Secretary of Joint Highway District No. 13 of the State of California, hereby certify that the annexed is a full, true and correct copy of the Certificate and Receipt of S. C. Wells, County Clerk of the County of Contra Costa, and ex-officio Clerk of the Board of Supervisors of the

County of Contra Costa, State of California, filed in the records of this District on the 2nd day of December, 1937.

HARRY M. STOW,

Secretary, Joint Highway District No. 13 of the State of California.

[Seal]

By B. V. RIORDAN,

Assistant Secretary.

RESOLUTION OF BOARD OF DIRECTORS
OF JOINT HIGHWAY DISTRICT No. 13
OF THE STATE OF CALIFORNIA, THAT
PROJECT IS COMPLETED; ADOPTED
UNDER THE PROVISIONS OF SECTION
32 OF THE "JOINT HIGHWAY DISTRICT
ACT."

"Whereas, on the 29th day of November, 1937, Wallace B. Boggs, District Engineer, made and furnished to the Director of Public Works of the State of California, an affidavit and certificate, in writing, showing that the highway, highway tunnels and appurtenances constituting the project of this District, had been constructed, improved and completed in accordance with the plans and specifications and supplements thereto previously adopted therefor; and

Whereas, on the 30th day of November, 1937, the Director of Public Works of the State of California issued and made his certificate, in writing, showing

that the said highway, highway tunnels and appurtenances constituting the project of this District had been duly constructed, improved and completed in accordance with the plans and specifications previously adopted therefor, which said certificate is now on file in the records of this District;

It is hereby resolved that the Board of Directors of Joint Highway District No. 13 of the State of California hereby declare that the project of said Joint Highway District has been duly constructed, improved and completed in accordance with the plans and specifications therefor adopted on the 30th day of March, 1933, and the amendments and supplements thereto adopted on the 9th day of January, 1934, the 3rd day of April, 1934, and the 23rd day of September, 1936, made by Wallace B. Boggs, District Engineer, and now on file in the office of said Joint Highway District, and that the said highway, highway tunnels and appurtenances are now complete and ready for use by the public;

It is hereby further resolved that the secretary or assistant secretary prepare certified copies of this resolution and transmit the same to Earl Lee Kelly, Director of Public Works of the State of California, and to the Boards of Supervisors of the Counties of Alameda and Contra Costa, which said counties comprise the counties within said Joint Highway District."

I, Harry M. Stow, Secretary of Joint Highway District No. 13 of the State of California, hereby certify that the foregoing is a full, true and correct

copy of a resolution adopted by the unanimous vote of all of the members of the Board of Directors of Joint Highway District No. 13 of the State of California, at a regular meeting of said Board of Directors held on the 1st day of December, 1937.

[Seal]

HARRY M. STOW,

Secretary, Joint Highway District No. 13 of the State of California.

By B. V. RIORDAN,

Assistant Secretary.

[Endorsed]: Filed December 2, 1937. Harry M. Stow, Secretary, Joint Highway District No. 13 of the State of California. By B. V. Riordan, Assistant Secretary.

State of California,
County of Alameda—ss.

I, G. E. Wade, County Clerk of the County of Alameda, and Ex-Officio Clerk of the Board of Supervisors of the County of Alameda, State of California, do hereby certify that the annexed is a full, true and correct copy of a certified copy of a resolution of the Board of Directors of Joint Highway District No. 13 of the State of California, which was delivered to and filed with the Board of Supervisors of the County of Alameda, State of California, on the 2nd day of December, 1937, and that

the same is now on file with such Board of Supervisors, and a part of the records of said Board.

Dated, this 2nd day of December, 1937.

G. E. WADE,

County Clerk and Ex-Officio
Clerk of the Board of Super-
visors of the County of
Alameda, State of Cali-
fornia,

By J. C. HOLLAND,

Deputy.

[Seal of Board of
Supervisors]

I, Harry M. Stow, Secretary of Joint Highway District No. 13 of the State of California, hereby certify that the annexed is a full, true and correct copy of the Certificate and Receipt of G. E. Wade, County Clerk of the County of Alameda, and ex-officio Clerk of the Board of Supervisors of the County of Alameda, State of California, filed in the records of this District on the 2nd day of December, 1937.

HARRY M. STOW,

Secretary,

Joint Highway District No.
13 of the State of Cali-
fornia,

[Seal] By B. V. RIORDAN,

Assistant Secretary.

RESOLUTION OF BOARD OF DIRECTORS
OF JOINT HIGHWAY DISTRICT No. 13
OF THE STATE OF CALIFORNIA; THAT
PROJECT IS COMPLETED; ADOPTED
UNDER THE PROVISIONS OF SECTION
32 OF THE "JOINT HIGHWAY DISTRICT
ACT."

"Whereas, on the 29th day of November, 1937, Wallace B. Boggs, District Engineer, made and furnished to the Director of Public Works of the State of California, an affidavit and certificate, in writing, showing that the highway, highway tunnels and appurtenances constituting the project of this District, had been constructed, improved and completed in accordance with the plans and specifications and supplements thereto previously adopted therefor; and

Whereas, on the 30th day of November, 1937, the Director of Public Works of the State of California issued and made his certificate, in writing, showing that the said highway, highway tunnels and appurtenances constituting the project of this District had been duly constructed, improved and completed in accordance with the plans and specifications previously adopted therefor, which said certificate is now on file in the records of this District;

It Is Hereby Resolved that the Board of Directors of Joint Highway District No. 13 of the State of California hereby declare that the project of said Joint Highway District has been duly constructed, improved and completed in accordance with the

plans and specifications therefor adopted on the 30th day of March, 1933, and the amendments and supplements thereto adopted on the 9th day of January, 1934, the 3rd day of April, 1934, and the 23rd day of September, 1936, made by Wallace B. Boggs, District Engineer, and now on file in the office of said Joint Highway District, and that the said highway, highway tunnels and appurtenances are now complete and ready for use by the public;

It Is Hereby Resolved that the secretary or assistant secretary prepare certified copies of this resolution and transmit the same to Earl Lee Kelly, Director of Public Works of the State of California, and to the Boards of Supervisors of the Counties of Alameda and Contra Costa, which said counties comprise the counties within said Joint Highway District."

I, Harry M. Stow, Secretary of Joint Highway District No. 13 of the State of California, hereby certify that the foregoing is a full, true and correct copy of a resolution adopted by the unanimous vote of all of the members of the Board of Directors of Joint Highway District No. 13 of the State of California, at a regular meeting of said Board of Directors held on the 1st day of December, 1937.

HARRY M. STOW,

Secretary,

Joint Highway District No.
13 of the State of California,

[Seal] By B. V. RIORDAN,

Assistant Secretary.

RESOLUTION OF BOARD OF DIRECTORS OF
JOINT HIGHWAY DISTRICT No. 13 OF
THE STATE OF CALIFORNIA, THAT
PROJECT IS COMPLETED; ADOPTED
UNDER THE PROVISIONS OF SECTION
32 OF THE "JOINT HIGHWAY DISTRICT
ACT."

"Whereas, on the 29th day of November, 1937, Wallace B. Boggs, District Engineer, made and furnished to the Director of Public Works of the State of California, an affidavit and certificate, in writing, showing that the highway, highway tunnels and appurtenances constituting the project of this District, had been constructed, improved and completed in accordance with the plans and specifications and supplements thereto previously adopted therefor; and

Whereas, on the 30th day of November, 1937, the Director of Public Works of the State of California issued and made his certificate, in writing, showing that the said highway, highway tunnels and appurtenances constituting the project of this District had been duly constructed, improved and completed in accordance with the plans and specifications previously adopted therefor, which said certificate is now on file in the records of this District;

It Is Hereby Resolved that the Board of Directors of Joint Highway District No. 13 of the State of California hereby declare that the project of said Joint Highway District has been duly constructed, improved and completed in accordance with the

plans and specifications therefor adopted on the 30th day of March, 1933, and the amendments and supplements thereto adopted on the 9th day of January, 1934, the 3rd day of April, 1934, and the 23rd day of September, 1936, made by Wallace B. Boggs, District Engineer, and now on file in the office of said Joint Highway District, and that the said highway, highway tunnels and appurtenances are now complete and ready for use by the public;

It Is Hereby Further Resolved that the secretary or assistant secretary prepare certified copies of this resolution and transmit the same to Earl Lee Kelly, Director of Public Works of the State of California, and to the Boards of Supervisors of the Counties of Alameda and Contra Costa, which said counties comprise the counties within said Joint Highway District."

I, Harry M. Stow, Secretary of Joint Highway District No. 13 of the State of California, hereby certify that the foregoing is a full, true and correct copy of a resolution adopted by the unanimous vote of all of the members of the Board of Directors of Joint Highway District No. 13 of the State of California, at a regular meeting of said Board of Directors held on the 1st day of December, 1937.

HARRY M. STOW,

Secretary,

Joint Highway District No.
13 of the State of California,

[Seal] By B. V. RIORDAN,

Assistant Secretary.

AFFIDAVIT AND CERTIFICATE OF DISTRICT ENGINEER THAT JOINT HIGHWAY DISTRICT PROJECT IS COMPLETE.

State of California,
County of Alameda—ss.

Wallace B. Boggs, being first duly sworn, deposes and says and certifies:

That at all times mentioned herein he was, and now is, the duly appointed, qualified and acting District Engineer of Joint Highway District No. 13 of the State of California;

That the project of said District, which includes a highway, highway tunnels and approaches with appurtenant structures, located partly in the City of Oakland, County of Alameda, State of California, and partly in the County of Contra Costa, State of California, all in said Joint Highway District No. 13 of the State of California, the westerly terminus of said project being located at a point near the intersection of Broadway with Keith Avenue in the said City of Oakland and the easterly terminus of said project being located at a point on the State Highway in Contra Costa County, approximately fourteen hundred feet northerly from the intersection of the Fish Ranch Road with said State Highway, which is commonly known as and called the "Tunnel Road", has been duly constructed, improved and completed in strict accordance with the plans and specifications therefor adopted by the Board of

Directors of said Joint Highway District on the 30th day of March, 1933, and the amendments and supplements to said specifications adopted by the Board of Directors of said District on the 9th day of January, 1934, on the 3rd day of April, 1934, and the 23rd day of September, 1936, all of which said plans and specifications and supplements thereto were approved by the Director of Public Works of the State of California;

That this affidavit and certificate of the undersigned as District Engineer of said Joint Highway District, is made for the purpose of securing a certificate, under the provisions of Section 32 of the Joint Highway District Act of 1931 (Stats. 1931, page 1026), and of a resolution of the State Highway Commission of the State of California adopted July 8, 1933, approving an additional contribution of \$400,000 to the cost of the project of said District by the State of California, from the Director of Public Works of the State of California, showing that the project of the District, which has been completed as aforesaid, has been duly constructed, improved and completed in accordance with the plans and specifications previously adopted therefor.

WALLACE B. BOGGS,

Subscribed and sworn to before me this 29th day of November, 1937.

[Notarial Seal] C. E. PAUL,
Notary Public in and for the County of Alameda,
State of California.

My Commission expires Oct. 31, 1941.

[Endorsed]: Filed November 29, 1937. Harry M. Stow, Secretary, Joint Highway District No. 13 of the State of California. By B. V. Riordan, Assistant Secretary.

[Endorsed]: U. S. Dist. Ct. N. D. Cal. No. 20101-R. Deft's Ex. No. X-116. Filed June 2, 1938. Walter B. Maling, Clerk. By J. A. Schaertzer, Deputy Clerk.

